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Exploring Trends in Labor Informality in Latin America, 1990-2010

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Exploring Trends in Labor Informality in Latin America, 1990-2010 *

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Abstract

Labor informality is a pervasive characteristic of the labor markets in Latin America, and a central issue in the public policy debate. This paper discusses the concept of labor informality and implements alternative definitions using microdata from around 300 national household surveys in all Latin American countries. The analysis covers two decades: while labor informality, defined as lack of social protection related to employment, remained with few changes in the 1990s, there is a discernible downward pattern during the 2000s in most countries. These movements reveal a counter-cyclical behavior of labor informality, that may be linked to segmentation in the labor market.

Keywords: labor informality, employment, Latin America, labor market

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1. Introduction

Labor informality is a pervasive characteristic of the Latin American economies. Most workers in the region are self-employed or salaried workers in small, precarious firms without a signed contract in compliance with the labor regulations, and without access to protection against health and unemployment shocks, to savings for old age, to employment protection and to labor related benefits. This is the typical situation for an unskilled Latin American worker, but in fact a sizeable share of skilled workers is in similar labor conditions. Despite some improvements in the last decade of economic growth, labor informality continues to be a key feature of the Latin American labor markets and a central concern for public policy. The debate on the size of the informal sector, its welfare implications and the adequate policy prescriptions is livelier than ever both in the academic and policy arena.

This paper makes a contribution to that debate by presenting evidence on the main patterns and trends of labor informality in Latin America, and discussing some of its main determinants. Unlike most existing studies that concentrate on a particular economy, in this paper we take a regional perspective and discuss evidence for all Latin American countries. The evidence is based on microdata from a large set of nearly 300 national household surveys from all Latin American countries covering two decades: the 1990s, a decade of structural transformations, moderate growth and weak labor regulations, and the 2000s, a decade of higher economic growth, and stronger labor and social policies. By displaying a general picture of informality in the region we expect to contribute to a more informed discussion of labor markets and employment policies in Latin America.

The debate on labor informality is often obscured by the fact that the term *informality* is ambiguous from a theoretical point of view, and difficult to implement empirically. In section 2 we discuss the concept of labor informality and the alternatives to empirically estimate it with data from the national household surveys. Section 3 is the core of the paper, as it presents the main patterns and trends of labor informality in the region, using alternative definitions. In section 4 we look at wages and hours of work of informal workers. In particular, we provide estimates of the conditional wage gap formal/informal by estimating multivariate probit models. Section 5 extends the analysis to assess whether the minimum wage, in principle only relevant for the formal sector, has a lighthouse effect for the wages in the informal sector.

Disentangling all the forces that drive informality is a very difficult task. In this paper we make a contribution by analyzing two factors that have been identified as relevant determinants: the business cycle and the employment structure of the economy. In section 6 we analyze changes in informality over the business cycle to assess whether informal employment moves pro or anti-cyclically with the economy and relative wages across sectors, while in section 7 we perform counterfactual micro-simulations to characterize the relevance of changes in the structure of employment and other variables as driving factors behind informality. Section 8 closes with a summary and concluding comment.

2. Concept and measurement

Academics, policy-makers and commentators extensively argue about labor informality and its policy implications.¹ The debate, however, is often obscured by the fact that informality usually means different things to different people. "Informality is a term that has the dubious distinction of combining maximum policy importance and political salience with minimal conceptual clarity and coherence in the analytical literature" (Kanbur, 2009).

There are at least two different concepts that are referred by the term *labor informality*.² The "social protection" definition stresses the lack of labor protection and social security benefits; while the "productive" definition pictures informal workers as those in low-productivity, unskilled, marginal jobs.³ The social protection definition is concerned with the compliance of the labor relationship with some rules, mainly labor protection, while the productive definition is concerned with the type of job (*e.g.* salaried vs. self-employed, large vs. small firms). The social protection definition of labor informality is theoretically more precise, and more relevant for most discussions concerning social and labor policy. For these reasons, this paper mostly deals with that alternative, although we complement the analysis with results using the productive definition.

2.1. The social protection definition

Under the social protection definition, informal firms are those not complying with the norms in terms of labor contracts, labor taxes, and labor regulations, and then their workers have no rights to labor protection or social benefits linked to employment. ILO (2002) defines an informal worker as one "whose labor relationship is not subject to labor legislation and tax rules, and has no access to social protection or right to certain labor benefits".⁴

This notion is difficult to implement empirically. There are at least two problems. The first one arises from the fact that the number of dimensions to be included under labor protection and social security is large and varies across countries. Labor protection includes contracts, severance payments, advance notice, right to be unionized, workplace safety, vacations, working hours and many more. Social security includes pensions, health insurance, unemployment insurance and other insurances and benefits. Countries differ in the extent of their labor protection and social security systems.

¹ The theoretical discussion is mostly taken from Gasparini and Tornarolli (2009).

² See Fields (1990), Portes and Schauffler (1993), Pradhan and van Soest (1995), Saavedra and Chong (1999), Maloney (1999), Guha-Khasnobis *et al.* (2006), Henley *et al.* (2006), Levy (2008), and Kanbur (2009) for surveys and discussions.

³ In recent volume, Guha-Khasnobis, Kanbur and Ostrom (2006) also link informality to the degree of structuring of the organization.

⁴ See also Merrick (1976), Portes *et al.* (1986) and Saavedra and Chong (1999).

Moreover, even in a given country regulations and social security rights differ by sector, by tenure, or other work characteristics, and change over time. Therefore, it is difficult in theory to come up with a social protection definition of a formal worker that is suitable for all countries and situations.

The second problem is practical. Even if we agree to a simple definition of an informal worker, household surveys widely differ in terms of coverage of labor protection and social security issues. Some surveys ask about contracts and some do not. The type of questions aimed at capturing the right to health insurance is very different across countries, and in some cases it is impossible to know whether health insurance is linked to employment. The coverage on severance payments and unemployment insurance is very low, while the questions on insurance for accidents in the workplace are almost inexistent. In fact many Latin American countries do not have comprehensive systems of insurances on many risks (including unemployment), so the National Statistical Offices do not include questions on these issues.

The right to receive a pension when retired is the social security benefit most asked in the Latin American household surveys. In fact, nearly all surveys in the region include a question capturing access to retirement benefits. For that reason we implement the following social protection definition of informality: *a worker is informal if s(he) does not have the right to a pension linked to her/his employment when retired.*

In the appendix 1 we provide information on the type of question included in each country/year to implement the social protection definition of informality. Unfortunately, the questions are not identical, a fact that introduces noise in the comparisons. Moreover, in some countries the questions apply only to salaried workers, leaving all the self-employed as missing.

2.2.The productive definition

The productive view classifies as informal those workers in low-productivity jobs in marginal small-scale and often family-based activities. ILO (1991) defines the informal sector as economic units “with scarce or even no capital, using primitive technologies and unskilled labor, and then with low productivity”. Maloney (2004) includes in the informal sector the “small-scale, semi-legal, often low-productivity, frequently family-based, perhaps pre-capitalistic enterprises”.

Naturally, it is also very difficult to empirically implement this notion, since things like “productivity” are unobservables, others like “capital endowment” are not usually reported in surveys, and others like “marginal”, “pre-capitalistic activities” or “primitive technologies” are difficult to define.

In practice researchers have tried to adjust this notion of informality to the information usually contained in surveys. Hence, the empirical implementation of informality has been linked to (i) the type of job (salaried, self-employment), (ii) the type of economic

unit (small, large, public sector), (iii) and the worker's skills. Following this practice we divide the working population into 7 groups:

1. Entrepreneurs (*patrones*)
2. Salaried workers in large private firms
3. Salaried workers in the public sector
4. Salaried workers in small private firms
5. Skilled self-employed
6. Unskilled self-employed
7. Zero-income workers

To implement this classification we include as *unskilled* all individuals without a tertiary or superior education degree, and we define as *small* all firms with 5 or fewer employees.⁵ Given that an individual could have more than one job, we apply the classification only to his/her main occupation. We implement the following productive definition of labor informality: *a worker is informal if (s)he belongs to any of the following categories: (i) unskilled self-employed, (ii) salaried worker in a small (private) firm or (iii) zero-income worker.*

Labor informality is closely related to self-employment. However, we exclude the self-employed with a tertiary degree from the group of informal workers. The group of skilled self-employed is mainly comprised by professionals and technicians usually with high productivity and fully incorporated into the modern economy. In fact, the professional self-employed is the group with the highest earnings in many countries in the region (see section 4).

Following a standard practice, we include salaried workers in small firms into the definition of informality. The assumption, which of course is debatable, is that most salaried workers in those firms operate using primitive technologies and with low productivity. In fact, many of these small firms are run by individuals who declare themselves being self-employed.

Finally, we also add the group of zero-income workers into the informal sector. Household surveys in the region have this category to include mostly family workers, *i.e.* individuals who perform some activity in a family-based enterprise but who are not formally paid for that job.

The inclusion of entrepreneurs/employers (*patrones*) into the formal sector is debatable, since in practice some of them are just self-employed in a low-productivity activity using scarce capital and some few unskilled workers. There are two practical problems regarding this group: (i) it is difficult (probably impossible) in theory to set a line separating out the entrepreneurs from just the self-employed employing some workers,

⁵ Given differences in surveys, the cut-off point is not 5 employees in all countries.

and (ii) even when we attempt to do it, there are some data limitations. For instance, most surveys do not report the number of employees working for a *patrón*. We have decided to include the entrepreneurs into the formal sector following a usual practice, and because earnings in that group are much higher than for the self-employed in all Latin American countries.⁶

This discussion confirms that the productive definition of labor informality is theoretically weak and empirically difficult to implement. However, it has lasted for decades and it is extensively used in the academic and policy debate, because it refers, although in an ambiguous way, to a relevant characteristic of the labor market in Latin America.

The productive and social protection definitions of informality are highly correlated. The next section shows statistics on both definitions and discusses the possible overlapping.

3. Trends in Latin America

This section documents the recent trends of labor informality for all countries in Latin America using both definitions discussed in the previous section. Prior to this analysis, we describe the main data used for the estimations.

3.1. The data

All the statistics in this paper are obtained by processing microdata from household surveys, which are part of the Socioeconomic Database for Latin America and the Caribbean (SEDLAC), jointly developed by CEDLAS at the Universidad Nacional de La Plata and the World Bank's LAC poverty and gender group (LCSPG). SEDLAC contains information on almost 300 household surveys in 25 LAC countries. Table 3.1 shows information on the 17 surveys used in the study. The sample covers all countries in mainland Latin America (with the exception of Guatemala), and one of the largest countries in the Caribbean, Dominican Republic. Most household surveys included in the sample are nationally representative. The two exceptions are Uruguay before 2006 and Argentina, where surveys cover only the urban population, which nonetheless represents more than 85% of the total population in both countries.

Household surveys are not uniform across Latin America. All possible efforts have been exerted to make statistics comparable across countries and over time by using similar definitions of variables in each country/year, and by applying consistent methods of processing the data. However, perfect comparability is far from being assured. A trade-off between accuracy and coverage arises. The particular solution adopted contains an

⁶ Henley *et al.* (2006) divide employers in Brazil into formal and informal according to the type of occupation. We are not able to apply a similar methodology to most countries in our sample.

unavoidable degree of arbitrariness. The aim has been to remain ambitious enough to include as many countries as possible in the analysis, and accurate enough so not to push the comparisons too much. In any case, we provide the reader with relevant information to assess the trade-offs.

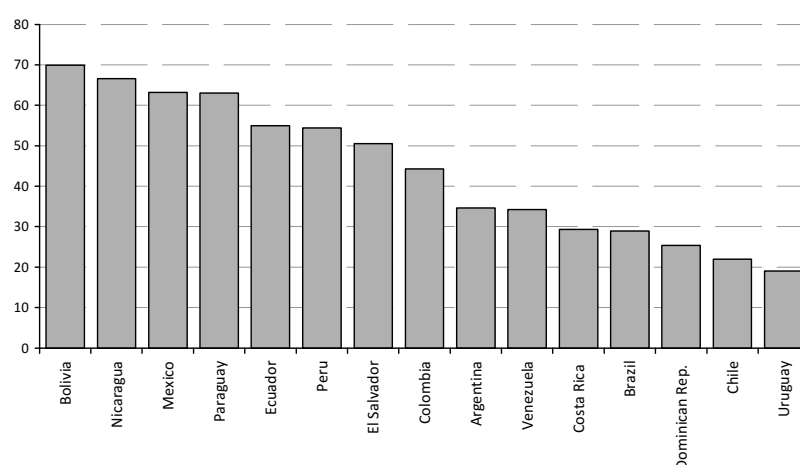
3.2. Trends in informality I (social protection definition)

The definition of informality based on access to social protection can be instrumented in 15 countries. Moreover, several of them have asked the required questions only in some years, and in around half of them the information is limited to the set of salaried workers. The specific questions devoted to capture labor informality from a social protection perspective are different across countries (appendix 1), a fact that generates comparability problems. If countries agreed to a basic set of questions concerning this issue, our understanding of informality and social protection in the region would be substantially more precise.

Informality in salaried employment

We start by implementing the definition of labor informality only for salaried workers, and then extend it to all workers but limiting the sample to the 7 countries that allow doing so. Figure 3.1 shows the proportion of salaried workers without access to social protection (*i.e.*, without the right to receive pensions when retired). The share of informal workers with this definition is relatively low in Chile and Uruguay (22% and 19% respectively), and somewhat higher in Argentina, Brazil, Costa Rica, Dominican Republic and Venezuela (between 25% and 35% approximately).

Figure 3.1
Informality rates – Social-protection definition
Salaried workers



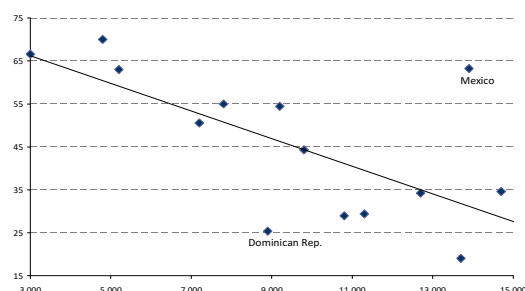
Source: own calculations based on SEDLAC (CEDLAS and The World Bank). Data for 2010 or closer year with information.

On the other hand, labor informality is higher than 60% in Bolivia, Mexico, Nicaragua and Paraguay. With a rate of around 45% Colombia stands as a country with an intermediate level of labor informality. Despite significant improvements in the last few years, Ecuador and Peru still show a high incidence of labor informality, with rates around 55%. El Salvador has similar levels of informal employment, though informality has been rising in recent years.

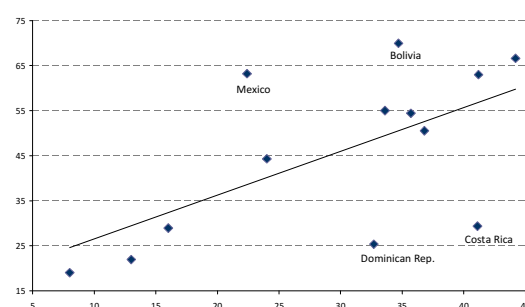
Understanding the deep determinants of informality is a difficult task. However, the evidence strongly points to some general basic facts: labor informality is positively associated to the economic development and the productive structure of a country. Figure 3.2 shows that labor informality is negatively correlated to per capita GDP (at PPP) and positively correlated to the share of rural population in the survey. Two interesting cases are worth mentioning from the first panel: in Mexico the level of informality greatly exceeds the expected value given the level of per capita GDP, while in Dominican Republic the opposite result is observed.

Figure 3.2
Informality (social protection) and per capita GDP, and share of rural population in the household survey

A. Informality (social protection) and per capita GDP



B. Informality (social protection) and share of rural population



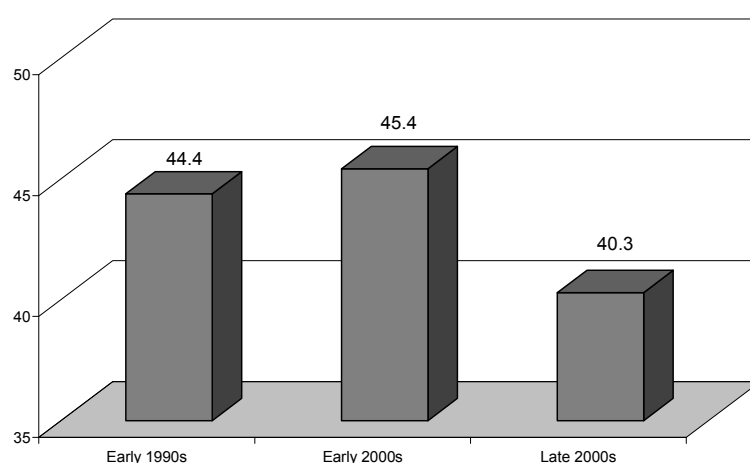
Source: own calculations based on SEDLAC (CEDLAS and The World Bank). Data for 2010 or closer year with information.

Changes in labor informality have been neither smooth over time nor homogeneous across countries (table 3.2 and figure 3.3). However, a clear picture of different patterns

in the two decades covered in the study emerges: while in the 1990s labor informality did not change or even increased in some countries, in the 2000s most economies managed to raise the level of social protection of their salaried workers. The contrast between decades is evident in Argentina, Brazil, Chile, Costa Rica, Nicaragua, Paraguay and Venezuela, countries that have data that spans over the entire period. Informality has also fallen in countries with data only for the 2000s: Bolivia, Colombia, Dominican Republic, Ecuador, Peru and Uruguay. In contrast, El Salvador and Mexico seem to be the countries with the worst performance, showing no signs of fall in labor informality.

Figure 3.4, constructed with data for the eight countries with information since the early 1990s shows the contrast: on average labor informality increased one point in the 1990s, and fell 5 points in the 2000s for that set of countries.

Figure 3.4
Informality in Latin America 1990-2010
Social protection definition
Salaried workers



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Note: estimates for eight countries with data that spans over the two decades. Unweighted mean for Latin America.

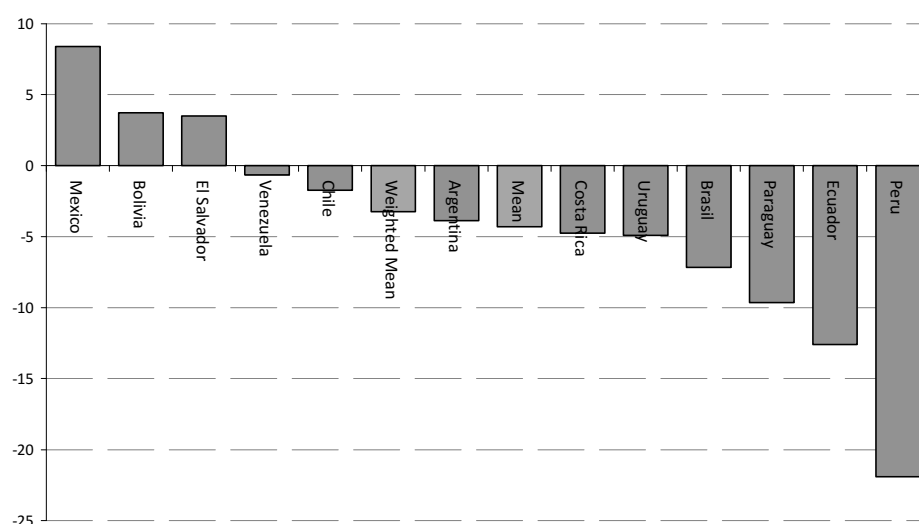
Figure 3.5 restricts the analysis to the last decade. This period is particularly interesting since it covers years of strong economic growth, job creation and significant improvement in terms of poverty and inequality in the income distribution (Cruces, Gasparini y Tornarolli, 2011). The evidence suggests a moderate reduction in the incidence of labor informality since the early 2000s. On average, the share of unprotected wage earners in Latin America fell 4.3 points in the decade (the fall in the weighted mean was 3.2).

The most outstanding case is Peru, with the greatest reduction in the rate of informality. However, due to the high starting point, labor informality remains to be a significant issue in that Andean country. Brazil, Ecuador and Paraguay have also performed well in

the last decade. Other countries that show a positive performance are Argentina, Costa Rica, Chile, Uruguay and Venezuela, though the improvements have been relatively small.

Bolivia, El Salvador and Mexico are the countries with the worst performances over the past ten years, experiencing an increase in the rate of informal employment. However, while Bolivia presents a reduction in informality by the end of the period, the opposite results are found for El Salvador and Mexico. In fact, Mexico is the country with the highest increase in informality.

Figure 3.5
Change in informality rate 2000-2010
Social protection definition
Salaried workers



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

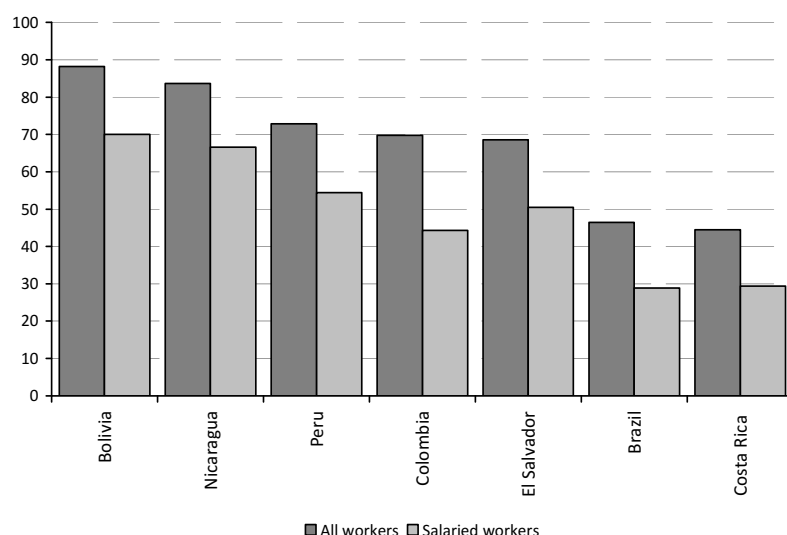
Informality including the self-employed

So far, we restricted the analysis to the set of salaried workers, since in several countries the questions included in the surveys are limited to that group. In this section we expand the analysis to all workers by first limiting the sample to seven countries with more ambitious questionnaires, and second making assumptions about informality for the self-employed.

Some household surveys have questions on social protection linked to employment to be answered by all workers, including the self-employed. Since these workers are typically not covered by a contributory social protection system, labor informality figures for all workers are significantly higher than for the set of wage earners (figure 3.6). The main results are invariant when extending the definition of informality to all workers. The ranking across countries is just slightly changed: for instance Costa Rica with a somewhat higher share of unprotected wage earners than Brazil, has a lower

share of self-employed, and hence a lower rate of labor informality when computed over the entire population of workers.

Figure 3.6
Informality Rates - Social protection definition



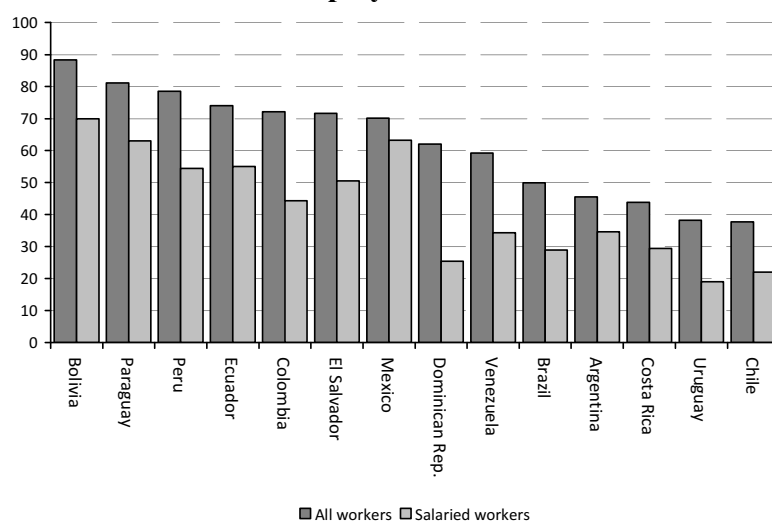
Source: own calculations based on SEDLAC (CEDLAS and The World Bank). Data for 2010 or closer year with information.

The labor informality trends are also consistent when limiting the sample to wage earners or when considering also the self-employed (table 3.3 and figure 3.7). Brazil and Peru stand among the most successful experiences in terms of reducing informality in the region.

We implement an alternative to obtain rough estimates of labor informality for all workers by assuming that all self-employed that are not professional (complete college education) are not covered by social protection linked to employment (table 3.4 and figure 3.8). As shown in the following section that is in fact the situation for nearly all the unskilled self-employed. The case for the skilled self-employed is less clear so we decided to leave this group and the group of entrepreneurs out of the calculations.

There are few changes in the national ranking when implementing this definition of informality (figure 3.9). Paraguay and Peru climb some positions given the large size of their self-employed workforce, while Chile reaches the last position in this ranking. The linear correlation between both definitions of informality is 0.91, and the Spearman correlation coefficient is 0.86.

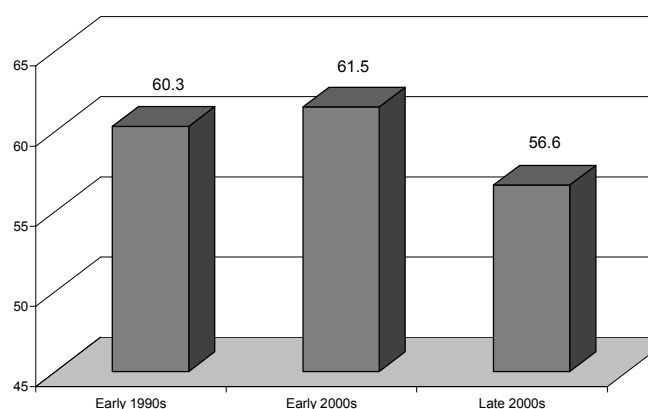
Figure 3.9
Informality Rates - Social Protection Definition
All workers – all self-employed considered as informal



Source: own calculations based on SEDLAC (CEDLAS and The World Bank). Data for 2010 or closer year with information.

The general picture of labor informality trends is not modified when assuming that all not-professional self-employed are unprotected (figure 3.10). The share of informal workers climbed around 1 point in the 1990s and fell around 5 points in the 2000s.

Figure 3.10
Informality in Latin America, 1990-2010
Social protection definition
All workers

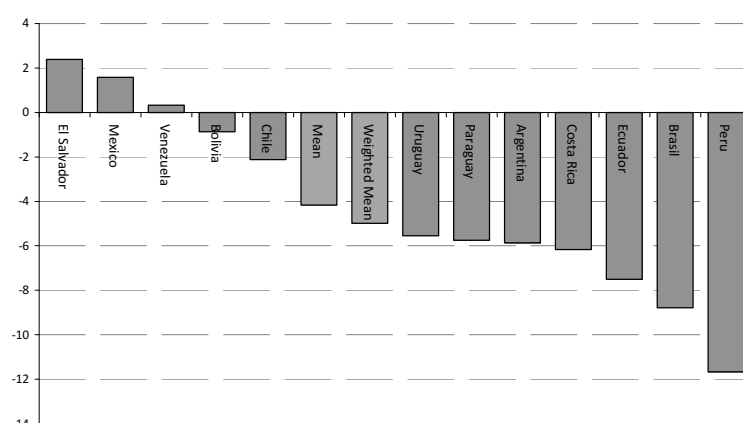


Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Note: estimates for eight countries with data that spans over the two decades. Unweighted mean for Latin America.

Without some few exceptions, the performance in the last decade was positive (figure 3.11). Again, Brazil and Peru stand as the most successful cases, while El Salvador and Mexico have the most worrisome statistics.

Figure 3.11
Change in Informality Rate 2000-2010
All workers – all self-employed considered as informal



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

3.3. Trends in informality II (productive definition)

In this section we provide some evidence on the level and trend of labor informality, defined from a productive perspective. Table 3.5 shows the share of workers in each of the seven labor categories defined in the previous section, according to the type of work. There are some differences between countries that are worth mentioning. The share of workers who are employed in large firms is over 32% in seven of the countries analyzed (Argentina, Brazil, Chile, Costa Rica, Mexico, Panama, and Uruguay). Chile, with 46.5%, is by far the country with the highest proportion of workers in this category. On the other hand, Bolivia, Honduras, Paraguay, and Peru have less than 20% of workers employed in this type of firms. In general, the share of workers in large firms is lower in less developed and more rural countries.

Public sector employees stand for more than 10% of the occupied labor force in the most developed countries of the region: Argentina, Brazil, Chile, Costa Rica, Dominican Republic, Mexico, Panama, Uruguay and Venezuela. In the remaining countries, that group of workers accounts for 5% to 9% of total employment.

Self-employed professionals represent a minor proportion of the workforce in all the countries in our sample. Their share over total employment only exceeds 3% in Argentina, Colombia and Peru.

Although the unskilled self-employed are a sizeable group in all economies, the importance of this category of workers in total employment varies across countries. In

Bolivia, Colombia, Dominican Republic, Ecuador, El Salvador, Honduras, Nicaragua, Paraguay, Peru and Venezuela, the unskilled self-employed constitute the main employment category, ranging from a proportion of 29.2% in El Salvador to 40.2% in Dominican Republic. On the contrary, in Argentina, Brazil, Chile, Costa Rica and Mexico less than 20% of the workers belong to this group.

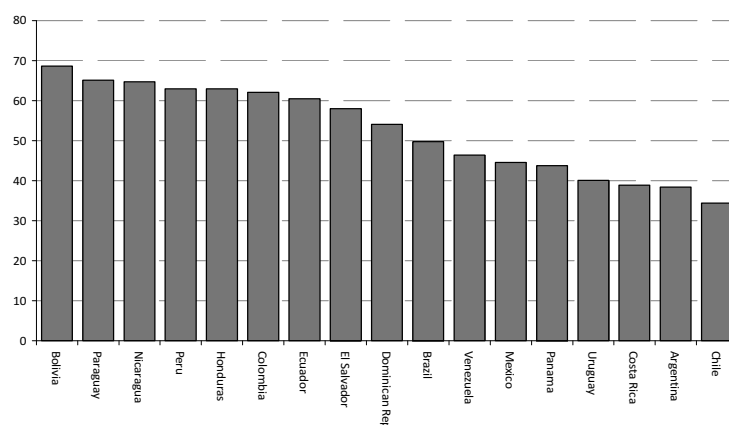
Salaried workers in small firms represent between 10.3% of the total employment (in Bolivia) and 26.2% (in Mexico). There is not a clear pattern linking development to the size of this group: Argentina, Brazil and Uruguay have a proportion of salaried workers in small firms similar to that from Ecuador, Honduras and Paraguay, while the share in Chile, Costa Rica, Nicaragua and Peru is almost identical.

Zero-income workers represent an important proportion of the labor force in countries with a large share of the population living in rural areas. That is the case of Bolivia, Ecuador, El Salvador, Honduras, Nicaragua, Paraguay and Peru, where at least 10% of the workforce are unpaid workers.

The employment structure does not dramatically change when restricting the analysis to urban areas (Table 3.6). The main differences are the higher share of workers in large firms and the public sector in urban areas, and the higher proportion of unskilled self-employed and, in particular, zero-income workers in rural areas.

The results presented in the previous paragraphs suggest the existence of large differences between countries regarding informality rates, when applying the productive definition. Data depicted in figure 3.12 corroborates this assertion. The proportion of informal workers exceeds 58% in Bolivia, Colombia, Ecuador, El Salvador, Honduras, Nicaragua, Paraguay and Peru, and it is below 40% in Argentina, Chile, Costa Rica, and Uruguay. Meanwhile, levels of informality are between 43% and 54% in Brazil, Dominican Republic, Mexico, Panama and Venezuela.

Figure 3.12
Informality rates
Productive definition

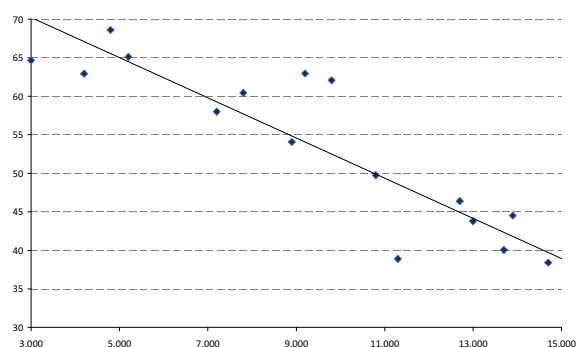


Source: own calculations based on SEDLAC (CEDLAS and The World Bank). Data for 2010 or closer year with information.

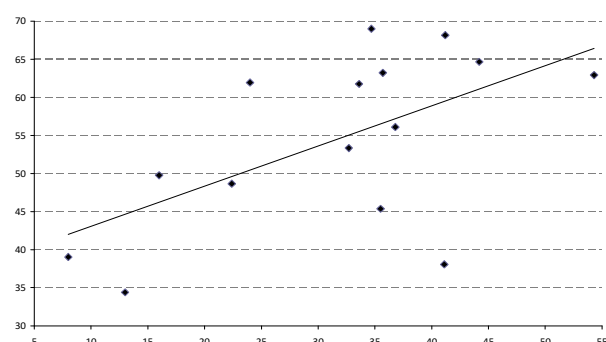
Once again, informality using this approach seems to be negatively correlated to per capita GDP and positively correlated to the share of rural population in the survey (figure 3.13).

Figure 3.13

A. Informality (productive) and per capita GDP



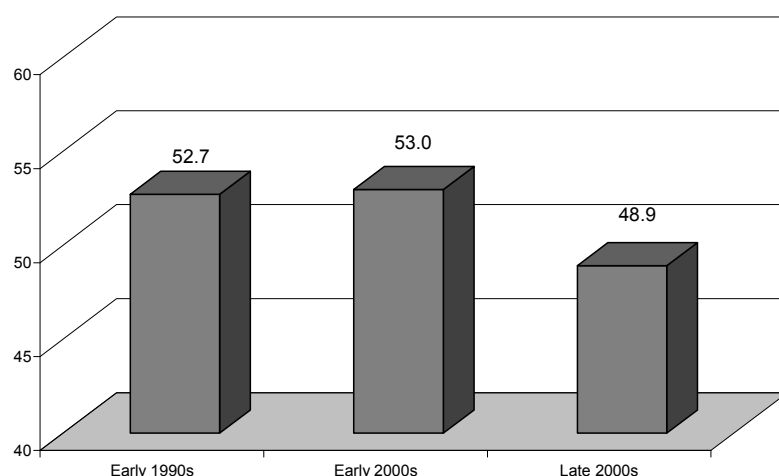
B. Informality (productive) and share of rural population



Source: own calculations based on SEDLAC (CEDLAS and The World Bank). Data for 2010 or closer year with information.

Figure 3.14 and table 3.7 show the evolution of labor informality using the productive definition. For some countries the trend can be depicted since 1990, while in others this exercise can only be done for the last decade. The contrast between decades found for the social protection definition is not that clear for the productive definition: in some countries the pattern was different between decades but the difference was rather small, while in others the labor structure remained roughly unchanged. However, when taking the average the result of previous sections applies: labor informality slightly increased (or remained unchanged) in the 1990s and fell in the 2000s (figure 3.15). In almost all countries, labor informality defined from a productive perspective is lower now than it was two decades ago, although for most economies the reduction has been far from spectacular.

Figure 3.15
Informality in Latin America, 1990-2010
Productive definition



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Note: estimates for eight countries with data that spans over the two decades. Unweighted mean for Latin America.

3.4. Comparing the two definitions

In this section results using both definitions of labor informality are analyzed to assess the overlapping. Table 3.8 shows the proportion of workers identified as informal by the social protection definition (i.e. workers without the right to receive a pension when retired), by labor category (i.e. the basis for the productive definition of informality). Several conclusions can be drawn from the results. In the first place, a high proportion of individuals classified as formal by the productive definition do not have the right to a pension when retired. Even within the public sector, pensions do not appear to be a universal right since more than 10% of the salaried public sector workers are not entitled to a pension in 9 out of the 16 countries in the sample. This fraction rises sharply for the other two formal labor categories. In particular, the proportion of self-employed professionals without right to pensions is remarkably high (around 90% in many countries). The share of unprotected large-firms employees is also high on average, though with important variations across countries: this proportion is around 15-20% in the Southern Cone, but climbs to 50% or more in Bolivia, Mexico, Nicaragua and Paraguay.

Despite these discrepancies between the informality definitions, the vast majority of informal workers according to the productive approach are also considered to be informal following the social protection definition (the correlation coefficient is 0.852). The mapping is not perfect though, particularly for the salaried workers in small firms. In some countries, a significant proportion of these workers will actually have access to a pension when retired (around 25-30% in Argentina and Costa Rica, 38% in Brazil and Uruguay, 50% in Chile and 55% in Dominican Republic).

Table 3.9 also contributes to the comparison of the two definitions of informality. The last column shows the proportion of salaried workers which is consistently classified as formal or informal by the two definitions. On average, this fraction is over 76%. This share is higher when considering all workers (instead of just salaried workers). Only a small proportion of those classified as informal following the productive definition have access to social security (column (iii)). The relatively large social security systems in the Southern Cone account for most of these cases. In contrast, there is larger fraction of formal workers by the productive definition which are considered informal in the legalistic sense, which might be explained by the low level of social-security coverage of the self-employed professionals and, to a lesser extent, the employees of large firms (column (ii)).

4. Wages and hours of work

In this section we document relative wages and hours of work of different labor categories. We start by showing unconditional statistics and then turn to a multivariate regression analysis.

Table 4.1 shows relative hours of work by social protection informality status and type of work. Workers are first divided into formal and informal according to the social protection situation, and then by type of work. The base group is all formal workers. Hours of work do not differ much across groups. Formal and informal entrepreneurs and formal salaried workers in private firms work in general more hours than the rest. Hours of work are significantly lower for family-based workers.

The ranking of hourly wages is generally consistent across countries (table 4.2). The ranking is leaded by formal entrepreneurs and professionals, followed by the informal entrepreneurs and professionals and the formal salaried workers in the public sector and in large firms. On average, the formal professionals earn around 46% more than formal public sector employees, while formal employees in large firms earn 47% less than in the formal public sector.

Formal workers in any labor category earn more than their informal counterparts in the same category. The difference ranges from 23% (for the self-employed professionals) to 67% for the entrepreneurs. For salaried workers the formal-informal wage gap is around 50%.

To further analyze wage differentials across groups, we run regressions of the log of hourly wages against several controls and dummies for the informal status. The conditional measures of the earnings gap of being informal arising from these regressions should be interpreted with care.⁷ In particular, welfare comparisons drawn from these results may be misleading. An informal job differs from a formal one in many dimensions, not only in the paid hourly wage. If we find that hourly wages are the

⁷ See Maloney (2004).

same in both sectors, the informal job may still be inferior since it precludes the access to social protection⁸, but it could be also superior, at least for some workers, since informality usually implies more flexibility: “being your own boss” is certainly a work amenity for many people.

There is a second reason why regressions should be interpreted with care. Informality coefficients may be biased if there are unobserved worker’s characteristics that affect productivity and influence the sector an individual chooses to work in. It could be the case that only people with entrepreneurial ability choose to be informal, and then become successful showing higher wages. Or, in the other extreme, it could happen that only people with low work attachment and without ability to tolerate authority, responsibilities and punctuality choose to be informal, and then probably get low earnings, in part precisely because of their own characteristics.

Table 4.3 shows the results of estimating log hourly wage regressions using Heckman maximum likelihood for a sample of urban workers aged 15 to 70. We run the regressions for men and women separately. In addition to the usual set of controls (education, age, and regional dummies) we include interactions between education and informality. In particular, we construct interaction variables by multiplying the informal binary variable with two educational dummies: one for those without any secondary education, and one for those with some high-school education. We also include interactions with dummy variables for the youth (15-24) and the elderly (56-70). The table shows the coefficients of these interaction variables.

We restrict the analysis to salaried workers and divide them according to the social protection definition of informality. The results are conclusive: in nearly all countries salaried workers with social protection also earn substantially more than informal salaried workers, even when controlling for observable factors. On average, informal male workers without a secondary education earn 23% less than their formal counterparts. The wage gap for those with secondary education is also significant, and even bigger on average (27.5%). Wage gaps of roughly the same magnitude are also present in the case of female workers (26.5% and 33.3%, respectively). The coefficients of the interaction variables with age groups are not always significant. In some countries being informal is associated to higher wages for the youth and lower wages for the elderly.

With the caveats discussed above, the results of this section provide preliminary evidence for the labor market segmentation hypothesis. Informal workers seem to be in an inferior situation compared to the formal counterparts: not only they lack social benefits related to the job, but they also earn lower wages, even when controlling for observable factors.

⁸ Under the legalistic view, that is true by definition. Under the productive view, social protection is not precluded for informal workers but it is rarer.

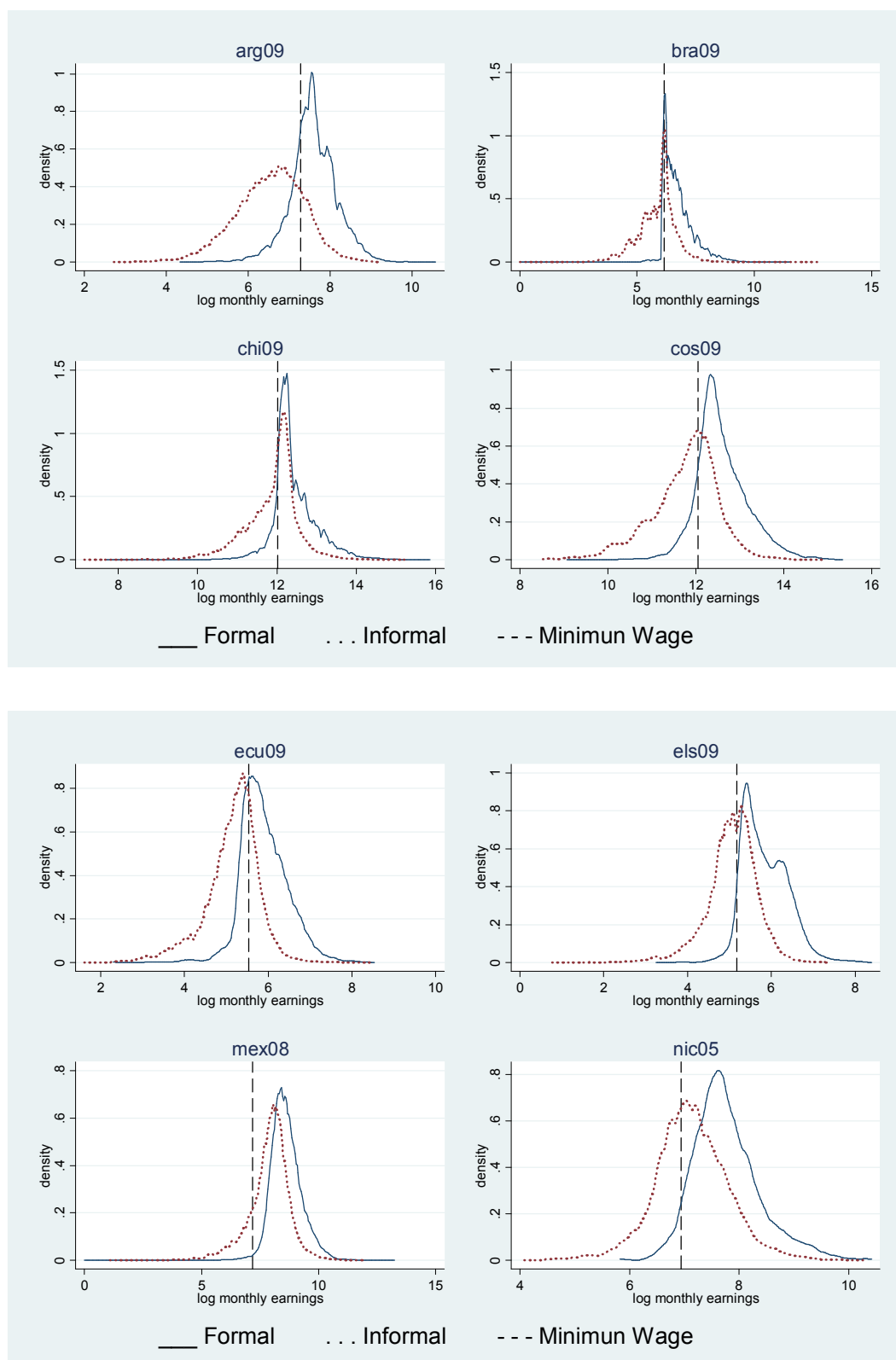
5. The minimum wage and the lighthouse effect

Compulsory minimum wages are aimed at improving incomes and reducing poverty, in particular among the unskilled workers. However, this regulation cannot typically be enforced in the informal sector of the economy, a fact that threatens its potential effectiveness. The effect of the minimum wage in the presence of a large informal sector has been typically studied using dualistic models (such as Harris and Todaro's model). In these models the implementation of this regulation introduces a source of segmentation in the labor market, preventing the adjustment of nominal wages. Workers that are not able to obtain a job in the formal sector must resort to the flexible informal sector, in which wages can be adjusted as needed to absorb the excess labor supply. As a result of this process, employment increases and wages decline in the informal sector.

Thus, in the presence of a large informal sector, the effect of a minimum wage law will depend on several factors such as the level of the minimum wage relative to the average wage, the dispersion in the wage distribution, the degree of enforcement of the regulation and the connection between the formal and the informal sectors, among others. The latter factor refers to the possibility of a *lighthouse effect* of the minimum wage over the informal sector: although in that sector the legislation on minimum wages does not operate, this regulation may still be used as a benchmark when setting wages.

With the aim of providing evidence on the possible lighthouse effect of minimum wages, we present estimations of the density functions of the distribution of wages in the formal and informal sectors. The estimations were obtained using kernel techniques.

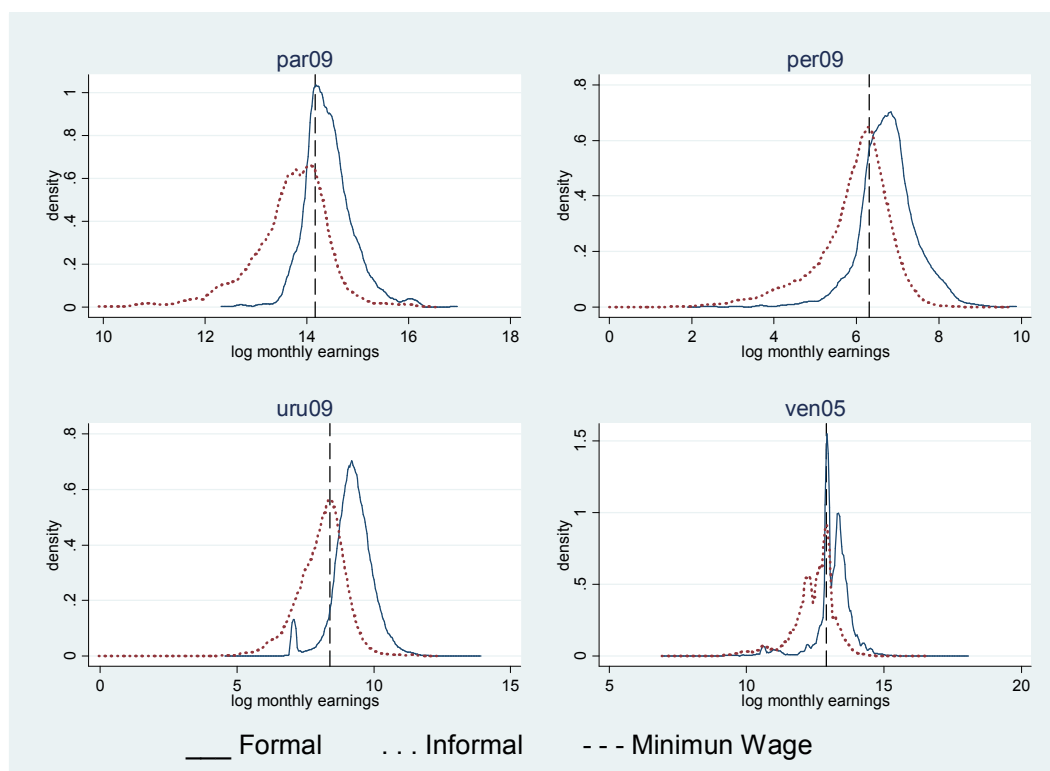
Figure 5.1
Estimations of the density functions of the distribution of wages in the formal and informal sectors



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Figure 5.1 (cont.)

Estimations of the density functions of the distribution of wages in the formal and informal sectors



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

The results suggest that the minimum wage seems to be operative in the formal sector in Brazil, Chile, El Salvador and Venezuela, given the presence of a sharp leap in the density around the legislated value. In Argentina, Costa Rica, Ecuador, Paraguay and Peru, minimum wages look somewhat binding, although there is more dispersion around that value. In contrast, in Mexico, Nicaragua and Uruguay, most formal workers have wages far higher than the minimum wage.

Results depicted in the figures seem to indicate that the lighthouse effect is significant in many Latin American countries. In particular, in Brazil, Chile, Costa Rica, El Salvador, Nicaragua, Paraguay, Peru, Venezuela and Uruguay either (i) the mode of the estimated wage distribution in the informal sector coincides with the minimum wage or (ii) there is a leap in the density function around this value, suggesting that the minimum wage works as a benchmark.

The minimum wage is one of the main active labor policies that governments can use to modify the labor market outcomes. There is a heated debate on its optimality that, naturally, cannot be decided on one argument. But the results of this section are important in pointing out that one of the main criticisms to the minimum wage in developing economies with large informal sectors is probably flawed. Even when many firms are not obliged to pay the minimum wage, the legislated value may be acting as a

lighthouse for the wage arrangements between firms and informal workers. These workers may end up benefiting from a policy measure that does not directly apply to them.

6. Determinants I: the business cycle

The aggregate level of labor informality in a country is the result of the interplay of numerous factors - including market forces, shocks, and policies - that are almost impossible to disentangle with the data typically at hand. In this section and the next we make a contribution to the debate on the determinants of informality by providing some evidence on the impact of two potential relevant drivers: the business cycle and the sectoral structure of the economy.

In this section we start by evaluating the relationship between labor informality and the business cycle. In particular, we want to determine whether informal employment and relative wages across sectors move pro or anti-cyclically with the economy. It has been argued that the co-movements of these variables over the cycle can provide some preliminary evidence on the relevance of the dualistic view of informality.⁹ According to this hypothesis, when the economy enters a recession, sticky wages in the formal sector force firms to lay off some of their workers, who find in the informal sector a way of coping, while waiting for better times to come. Thus, the informal sector absorbs displaced workers during downturns. The entrance of workers into this sector drives wages down relative to those in the formal sector, which remains downwardly rigid. Therefore, relative (informal/formal) sector size and wages should move oppositely.

In contrast, under other assumptions and shocks, the two variables may go in the same direction. For instance, if informality is perceived as a close substitute for a formal job, an autonomous increase of the informal sector relative wage (e.g. after an autonomous increase in the relative price of non-tradables) should attract workers and hence increase the size of that sector. On this framework, the informal status is perceived as a “voluntary” condition, because workers can choose to be formal or informal depending on the relative wages offered. Instead, in the segmented view the shifted workers from the formal sector cannot choose their status, which is associated with the “involuntary” notion of informality.

We do not have enough data to carry out a rigorous test of the co-movements between the size of the informal sector, relative wages and the cycle.¹⁰ Instead, we present a

⁹ See Fiess *et al.* (2002, 2006), Maloney (2004), Johnson *et al.* (1997), Schneider and Enste (2000), Friedman *et al.* (2000); Loayza, *et al.* (2005) and Loayza and Rigolini (2006).

¹⁰ Using multivariate co-integration techniques, Fiess *et al.* (2006) find periods of co-movements of relative earnings and sector size in Argentina, Brazil, Colombia and Mexico. They find that informal self-employed and formal salaried sectors often appear as one integrated labor market, rather than segmented or dual labor markets. However, it is also the case that rigidities in the formal salaried sector can become binding, as appears to be most dramatically the case in Colombia, and lead to patterns consistent with the traditional segmentation hypothesis of adjustment. Loayza and Rigolini (2006) found a pro-cyclical

descriptive analysis of these variables for the countries in the sample. Figure 6.1 shows the ratio informal/formal for both the number of workers and the mean hourly wage, restricting the sample to urban workers aged 15 to 70 without tertiary education. While in that figure we restrict the analysis to salaried workers and implement a social protection definition of informality, we also extended the exercise alternatively considering as informal (i) the self-employed (non-entrepreneurs), and (ii) salaried workers without right to pensions plus the self employed (non-entrepreneurs).¹¹

The main finding is that in most countries the relative size of the informal sector seems to be counter-cyclical. In contrast, the evidence for cyclicity of relative wages is much less conclusive: it is difficult to find in most countries a clear pattern of the movements of relative wages over the business cycle.

In Argentina, and according to the prediction of the labor-market-segmentation hypothesis, the share of informal workers greatly raised during the crisis that started around 1998, together with a decline in relative wages. But with the economic recovery since 2003, the relative wages did not increase as the hypothesis would predict. Brazil, Chile and Colombia seem to be consistent with the segmentation view when considering as informal the salaried workers without right to pensions, but this relation seems less clear when we also include the self-employed. The segmentation hypothesis seems to be consistent with the evidence in Uruguay and Venezuela, especially when including the self-employed, although not in the whole period under analysis. For other countries (e.g. Costa Rica and Peru), there is not a clear relationship even when looking at sub-periods of the sample.

For an overall analysis, we run regressions for the ratio informal/formal of the number of workers (I/F) and mean hourly wages (W_i/W_f) as dependent variables, as lineal functions of the log per capita GDP. Alternatively, we use the three different definitions of informal workers mentioned above. Table 6.1 shows the relevant estimated coefficients. It is worth noticing, before interpreting these results, that coefficients should be taken only as correlations. The pool data regressions exploit the cross section variability which could be interpreted as a proxy of the long run relations: in nearly all cases, the level of production is negatively related with the ratio of workers, and it is positively related with relative wages, in both cases in a statistically significant way.

To capture the short run associations, we run three different configurations: (i) adding fixed effects, (ii) adding fixed effects and lineal time trends by country, and (iii) adding fixed effects and second order polynomials time trends by country. We also compute the exercises replacing the log of per capita GDP by the business cycle computed using the Hodrick Prescott Filter (table 6.2). As an overall result, the ratio of informal/formal workers tend to be negatively related to per capita GDP and the business cycle, while

movement in the relative size of self-employed workers in several of their sample of 42 countries, but because of the limited data, they do not analyze the relation of relative earnings.

¹¹ For simplicity we do not show these graphs, which available upon request.

the ratio of wages usually shows a positive relation. As expected, this relations are much more evident in urban areas, and mostly significant for the unskilled workers group (up to secondary), but surprisingly also (and with high coefficients) for the skilled self-employed sample.

Summarizing, the segmentation hypothesis seems to weakly prevail over the integration alternative. In general the relative size of the informal sector tends to diminish in the economic expansions and increase during downturns. The strong economic expansion that Latin America experienced during the 2000s could have been a relevant driving force of the fall in labor informality in the region.

7. Determinants II: employment structure

As previous sections have shown, informality rates vary considerably across countries and years. Beyond differences attributable to survey coverage, measurement errors and differences in surveys design, there is still enough heterogeneity to be explained. For instance, as table 7.1 shows, there are sectors (primary activities, construction, domestic servants) that appear to be essentially more informal than others, for any country. A natural question arises regarding whereas changes in informality rates in a country over time could result from a change in the employment structure, from a change in the intrinsic informality within sectors or a combination of both factors. Similarly, differences in informality rates across countries can be explained by an employment structure relatively intensive in sectors with high informality or can be the result of a higher propensity to informality within each sector.

In this section we perform a set of exercises to account for the relative importance of the employment structure in explaining changes and differences in informality rates. In doing that, we use the social protection definition of labor informality.

7.1.Characterizing differences between periods

The first decomposition, reported in table 7.2, follows from the methodology proposed in Gasparini (2002). The main inputs are the estimated coefficients of models for the informality status of a worker. If we consider two periods, t1 and t2, the observed informality rate in t1 can be compared with two simulated aggregate rates; the informality rate that would arise if the distribution of characteristics (independent variables of the regression) of period t1 is combined with the regression parameters of period t2, and the informality rate that would arise if characteristics of period t2 are combined with t1 regression parameters. The first difference is labeled “parameter effect” and the second one “characteristics effect”.¹²

¹² A formal derivation of this procedure can be found in Gasparini (2002).

Following this procedure, we estimate the parameters effects and the characteristics effects of the observed changes in informality rates during of the 2000s. We also report decompositions of the changes during the 1990s for some countries with available data.

The results can be interpreted as follows. Labor informality decreased 9.3 points among urban salaried workers in Argentina between 2003 and 2010. If only the parameters linking observable characteristics to informality had changed in that period, and all observable characteristics had remained fixed, informality would have fallen by 6.0 points. On the other hand if only the observable characteristics of workers (including those of their jobs) had changed, informality would have decreased by 3.3 percentage points. Thus, the decline in labor informality in Argentina since 2003 is explained mainly by a decrease in the propensity to informality within most groups. However, the contribution of the change in the employment structure in some informality-decreasing directions was also significant.

Similar results are found for the cases of Costa Rica, Dominican Republic, Ecuador, Peru and Uruguay, for the same period. In other words, the reduction in labor informality in these countries can be explained by both the characteristic effect and the parameter effect, being the latter the most relevant in magnitude.

In the cases of Brazil, Nicaragua and Paraguay both effects also pushed in the direction of reducing informality, though the effect of the changes in parameters linking observable characteristics to informality was significantly lower than the effect of the changes in characteristics. In Chile, results indicate that the small decline in informality in the last decade is fully explained by the parameters effect.

The reduction of labor informality in Colombia in the period 2006-2010 is explained in similar proportion by both effects. In Venezuela, the significant reduction in informality due to a change in the employment structure was partially cancelled by an increase in the propensity to informality within most sectors.

Finally, in the cases of Bolivia, El Salvador and Mexico both effects operated in the same direction, though they pushed for an increase in the level of labor informality. In the three cases, the parameters effect was clearly higher than the characteristics effects.

In summary, the contribution of the characteristic effect on the widespread fall in informality in the region in the 2000s has been far from negligible. Changes in the structure of the economy toward more “pro-formal” sectors (industry, public sector, some skilled services) seem to have contributed to the reduction in the national rates of labor informality. In most countries the contribution was significant, although in many of them it was just complementary of a stronger economy-wide movement toward more formal labor arrangements.

7.2. Characterizing differences across countries

The observed difference in the informality across countries can be decomposed into changes in the characteristics of the population and changes in the estimated coefficients

of the informality regression. Following the same procedure as in the previous section, we estimate the parameters effects and the characteristics effects of the observed differences in informality rates among countries (table 7.3).

We find that while the employment structure in Uruguay -in terms of sector composition and characteristics of its labor force- is the most pro-formal in the region, Chile has the most pro-formal vector of parameters. That implies that any country with Chile's parameters and with Uruguay's vector of characteristics would reduce its level of labor informality. Countries with high rates of informality (Ecuador, El Salvador, Mexico, Nicaragua, Paraguay and Peru) have typically pro-informal employment structures. Informality in those countries would be reduced if they had the characteristics of other countries.

An interesting finding is that the size of the parameters effect tends to be greater than the characteristics effect in countries with high informality, while the opposite is true for countries with low levels of informality.

Note that this decomposition imposes the joint distribution of population characteristics of one country over another; this means that the correlation between two particular dimensions (i.e. education and sector structure) is fixed. Consequently, the "characteristics effect" can be an imperfect indicator if we want to evaluate how a particular dimension can explain the differences across countries without changing other variables. In particular, we are interested in isolating the effect of the employment structure; in other words, we want to estimate how the overall informality rate would change in a particular country if a different sector structure were imposed, keeping unchanged the internal characteristics within sectors (i.e. parameters, education, age, etc.).

A simple exercise can be performed to estimate how a country overall informality rate would change if the sector-structure from a different country were imposed. Following Reis *et al.* (2009), given two countries A and B, we can express the simulated informality rate for country A using country B's sector-structure as:

$$I_A^{(B)} = \sum_{s=1}^S \theta_s^{(B)} i_s^{(A)}$$

where $\theta_s^{(B)}$ is the share of sector s in total employment of country B and $i_s^{(A)}$ is the informality rate within sector s in country A. The difference between observed rates and simulated ones accounts for the "composition effect".

Table 7.4 summarizes the results for this simple exercise using cross country data; each column reports the simulated informality rates for a given country imposing the sector-

structure of the country in the corresponding row.¹³ We find that Costa Rica, Argentina and Mexico are the countries where the structure of employment is more pro-formal, in the sense that imposing the employment structure of any other country would increase informality rates. On the other hand, countries like Ecuador, Chile and Paraguay would reduce informality rates if workers were distributed according to the sectoral structure of any other country. For instance, Chilean workers are relatively more concentrated on two sectors with the highest informality within Chilean economy (primary activities and commerce). Consequently, if we combine Chilean sector-informality rates with the employment structure from Argentina (where these sectors represent lower shares on total employment), informality would decrease. Although the composition effect appears to be important when comparing some countries, in most cases it only accounts for a small portion of the difference. Consider for example the effect of combining Chilean employment-structure with the Argentinean sector-informality rates. The composition effect would be 0.5 percentage points whereas the actual difference in informality rates between these countries is around 14 percentage points.

8. Concluding remarks

Labor informality is a pervasive characteristic of the labor markets in Latin America, and a central issue in the public policy debate. In this paper we discuss the concept of labor informality and implement alternative definitions using microdata from a large database of national household surveys in all Latin American countries.

Changes in labor informality have been heterogeneous across countries. However, a clear picture of different patterns in the two decades covered in the study emerges: while in the 1990s labor informality did not change or even increased in some economies, in the 2000s most countries managed to reduce the share of the unprotected workers. These results apply to all definitions of informality.

In general the relative size of the informal sector tends to diminish in the economic expansions and increase during downturns. The strong economic expansion that Latin America experienced during the 2000s could have been a relevant driving force of the fall in labor informality in the region. Also, changes in the structure of the economy toward more “pro-formal” sectors (industry, public sector, some skilled services) seem to have contributed to the reduction in the national rates of labor informality. In most countries the contribution was significant, although in many of them it was just complementary of a stronger economy-wide movement toward more formal labor arrangements.

With the caveats discussed in the paper, we find some weak evidence for the labor market segmentation hypothesis: informal workers lack social benefits and earn lower wages, and informality is in general counter-cyclical.

¹³ Using a similar procedure, Reis et al. (2009) estimate how the informality rate in Turkey would change if the structure of a more developed country were used. Particularly, Reis *et al.* (2009) imposes the average European sector-structure.

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Appendix 1

Social protection definition of informality

Country	A work is formal is he/she...
Argentina	has a deduction in his/her salary for pension contribution
Bolivia	is affiliated with an AFP (Administradora de Fondos de Pensiones)
Brazil	contributes to the Social Security system
Chile	is affiliated with any social security system
Colombia	is affiliated with any social security system
Costa Rica	is affiliated with CCSS (Caja Costarricense de Seguridad Social)
Dominican Rep.	is affiliated with AFP o other pension system
Ecuador	has social security from his/her employment
El Salvador	is affiliated with any social security system
Honduras	has the right to a pension when retired
Mexico	has the right to a pension when retired (is affiliated with SAR (Sistema de Ahorro para el Retiro) o AFORE (Admi
Nicaragua	contributes to the INSS (Instituto Nicaragüense de Seguridad Social)
Paraguay	contributes to any social security system
Peru	is affiliated with any social security system
Uruguay	has a deduction in his/her salary for pension contribution
Venezuela	has the right to social benefits

Table 3.1**Household surveys used for this study**

Country	Survey Name	Acronym	Years	Coverage
Argentina	Encuesta Permanente de Hogares	EPH	1992-2003	Urban
	Encuesta Permanente de Hogares - Continua	EPH-C	2003-2010	Urban
Bolivia	Encuesta Continua de Hogares - MECOVI	ECH	1999-2008	National
Brazil	Pesquisa Nacional por Amostra de Domicilios	PNAD	1992-2009	National
Chile	Encuesta de Caracterización Socioeconómica Nacional	CASEN	1990-2009	National
Colombia	Encuesta Continua de Hogares	ECH	2001-2005	National
	Gran Encuesta Integrada de Hogares	GEIH	2006-2010	National
Costa Rica	Encuesta de Hogares de Propósitos Múltiples	EHPM	1989-2009	National
	Encuesta Nacional de Hogares	ENH	2010	National
Dominican Rep.	Encuesta Nacional de Fuerza de Trabajo	ENFT	2000-2010	National
Ecuador	Encuesta de Empleo, Desemple y Subempleo	ENEMDU	2003-2010	National
El Salvador	Encuesta de Hogares de Propósitos Múltiples	EHPM	1991-2010	National
Honduras	Encuesta Permanente de Hogares de Propósitos Múltiples	EPHPM	1991-2010	National
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	1992-2010	National
Nicaragua	Encuesta Nacional de Hogares sobre Medición de Nivel de Vida	EMNV	1993-2005	National
Panama	Encuesta de Hogares	EH	1989-2010	National
Paraguay	Encuesta Integrada de Hogares	EIH	1997/2001	National
	Encuesta Permanente de Hogares	EPH	1999/2003-2010	National
Peru	Encuesta Nacional de Hogares	ENAHO	1997-2010	National
Uruguay	Encuesta Continua de Hogares	ECH	1989-2005	Urban
	Encuesta Continua de Hogares	ECH	2006-2010	National
Venezuela	Encuesta de Hogares Por Muestreo	EHM	1989-2010	National

Table 3.2
Informality rate
Social protection definition
Salaried workers

Year	Argentina	Bolivia	Brasil	Chile	Colombia	Costa Rica	Dominican Republic	Ecuador	El Salvador	Mexico	Nicaragua	Paraguay	Peru	Uruguay	Venezuela
1989						27.2									
1990				21.4		31.1									
1991									60.2						
1992	31.8		38.0	22.8		30.0									
1993	32.5		39.1			29.3					62.3				
1994	29.7					32.1									
1995	33.8		38.5			31.4			54.7						34.6
1996	35.9		39.3	22.0		32.9			57.0						35.0
1997	37.0		38.2			34.0						75.3			37.5
1998	37.9		36.6	22.9		34.1			48.5	57.8	71.5				35.4
1999	38.3	64.2	37.0			33.9			47.8			73.8	75.9		35.6
2000	38.5	66.3		23.7		34.1			47.0	54.8			76.0		31.9
2001	38.7	70.4	36.1			31.0			48.0		68.2	72.6	72.0	23.9	35.6
2002	44.1	74.4	36.3			30.7			45.4	58.8		73.8	70.7	24.4	38.9
2003	43.7	75.3	35.0	22.4		32.0		67.6	48.2			74.4	69.0	26.7	41.6
2004	43.4	75.3	35.0			29.4		67.1	50.3	60.1		76.8	62.1	28.4	40.2
2005	42.1	67.3	33.7			32.5	53.7	67.3	48.2	61.1	66.6	71.7	64.4	27.1	40.0
2006	39.9	66.3	33.2	20.2	51.0	31.2	46.4	67.2	49.3	59.5		75.6	61.6	22.7	39.5
2007	39.5	68.2	31.1		48.0	30.8	36.2	66.4	48.6			70.7	57.7	22.1	37.4
2008	37.1	70.0	29.8		43.6	28.5	28.9	64.3	46.2	61.0		70.4	57.1	20.8	34.3
2009	35.9		28.9	22.0	44.5	27.5	28.5	60.3	48.5			68.3	54.6	19.5	
2010	34.6				44.3	29.4	25.4	55.0	50.5	63.2		63.0	54.4	19.0	29.2

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 3.3
Informality rate
Social protection definition
All workers

Year	Bolivia	Brazil	Colombia	Costa		El Salvador	Nicaragua	Peru
				Rica				
1989				38.4				
1990				48.1				
1991					75.2			
1992		57.4		46.9				
1993		57.9		46.8		79.1		
1994				48.3				
1995		57.5		48.3	71.9			
1996		57.1		49.1	72.2			
1997		57.0		50.8				
1998		56.5		50.2	65.8	84.5		
1999	88.7	57.3		50.7	65.3			87.2
2000	88.8			50.1	67.0			87.3
2001	89.6	55.0		49.9	66.6	83.7		87.0
2002	91.3	55.6		50.0	66.5			86.9
2003	90.6	54.4		50.0	66.5			85.6
2004	90.6	53.5		49.0	67.7			80.8
2005	80.7	52.6		49.6	67.3	83.6		81.1
2006	82.2	51.4	70.2	49.2	66.2			79.0
2007	88.2	49.3	68.5	46.8	66.4			75.8
2008	88.2	47.9	67.8	45.5	65.8			75.4
2009		46.5	69.5	44.9	67.6			73.5
2010			69.7	44.5	68.5			72.9

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 3.4
Informality rate
Social protection definition
All workers – all self-employed considered as informal

Year	Argentina	Bolivia	Brazil	Chile	Colombia	Costa Rica	Dominican Republic	Ecuador	El Salvador	Mexico	Nicaragua	Paraguay	Peru	Uruguay	Venezuela
1989						46.0									
1990				40.6		48.7									
1991									76.7						
1992	48.5		62.4	41.0		46.7									
1993	49.6		62.9			46.1					62.3				
1994	46.7					47.3									
1995	48.9		62.8			47.6			73.6						56.8
1996	49.9		62.2	38.8		48.0			75.2						57.2
1997	50.3		61.8			49.7						87.9			60.0
1998	50.6		60.8	39.1		48.7			69.7	72.3	71.5	.			59.3
1999	51.0	88.9	61.6			48.4			68.2			87.1	89.8		59.9
2000	51.4	89.2		39.8		50.0			69.2	68.6		.	90.2		58.8
2001	52.1	90.3	58.7			47.9			70.3		68.2	86.8	88.1	43.8	60.8
2002	55.9	91.8	58.9			47.9			69.1	71.8		88.2	87.6	45.1	64.0
2003	56.5	91.0	58.0	39.2		47.5		81.6	69.3			88.1	88.0	46.8	66.5
2004	55.5	91.0	56.9			46.3		82.5	69.7	70.7		89.5	89.8	48.0	64.7
2005	54.1	89.5	56.1			47.0	75.3	81.6	70.4	71.9	66.6	86.0	84.5	45.9	63.4
2006	51.5	89.1	55.0	36.7	71.4	46.5	71.3	81.9	69.3	71.4		88.1	82.7	42.0	62.2
2007	49.9	87.7	52.9		70.0	44.7	65.4	81.1	69.5			85.0	80.4	41.6	61.1
2008	48.2	88.4	50.9		69.9	42.8	62.9	79.1	70.0	68.7		84.1	80.1	40.2	59.2
2009	47.5		49.9	37.7	71.8	42.2	62.9	77.6	72.4			83.5	78.7	39.1	
2010	45.5				72.1	43.8	62.1	74.1	71.6	70.2		81.1	78.5	38.2	56.9

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 3.5
Distribution of Workers by Labor Category

Country	Year	Formal				Informal		
		Entrepreneurs	Salaried workers		Self-employed professionals	Salaried Small firms	Self-employed Unskilled	Workers with zero income
			Large firms	Public sector				
Argentina	2010	4.6	37.3	16.4	3.3	22.5	15.1	0.8
Bolivia	2008	5.8	15.7	8.4	1.6	10.3	31.6	26.6
Brazil	2009	4.3	32.7	11.7	1.5	21.9	19.0	8.8
Chile	2009	3.5	46.5	13.0	2.6	14.0	19.9	0.5
Colombia	2010	5.0	25.4	4.5	3.2	16.9	39.8	5.2
Costa Rica	2009	7.3	38.5	15.8	0.3	18.0	18.4	1.6
Dominican Rep.	2010	4.8	27.2	12.2	2.4	11.4	40.2	1.7
Ecuador	2010	3.4	25.2	9.3	1.7	20.2	29.4	10.8
El Salvador	2010	4.1	28.6	7.6	0.7	19.3	29.2	10.6
Honduras	2010	2.3	18.5	6.1	0.5	21.1	39.2	12.4
Mexico	2010	5.1	33.7	11.5	1.1	26.2	16.4	6.1
Nicaragua	2005	4.5	23.5	6.6	0.7	18.3	29.6	16.8
Panama	2010	3.1	36.0	14.6	1.0	13.2	25.9	6.2
Paraguay	2010	5.1	19.6	9.0	1.1	22.2	32.8	10.2
Peru	2010	5.5	19.8	8.3	3.2	14.4	33.4	15.4
Uruguay	2010	4.8	39.1	14.3	1.8	18.0	20.8	1.3
Venezuela	2008	4.5	29.0	16.6	2.3	12.6	33.4	1.6

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 3.6
Distribution of Workers by Labor Category - Urban Areas

Country	Year	Formal				Informal		
		Entrepreneurs	Salaried workers		Self-employed professionals	Salaried Small firms	Self-employed Unskilled	Workers with zero income
			Large firms	Public sector				
Argentina	2010	4.6	37.3	16.4	3.3	22.5	15.1	0.8
Bolivia	2008	6.4	23.4	11.6	2.7	14.6	30.8	10.5
Brazil	2009	4.7	37.6	13.0	1.7	21.3	17.8	3.7
Chile	2009	3.5	47.2	13.8	2.8	13.3	18.9	0.4
Colombia	2010	4.7	29.5	5.0	4.0	15.2	37.7	3.9
Costa Rica	2009	7.6	39.9	18.4	2.2	15.8	14.9	1.1
Dominican Rep.	2010	4.3	30.3	14.8	3.1	10.7	34.4	2.3
Ecuador	2010	4.2	29.7	12.1	2.5	19.2	27.1	5.3
El Salvador	2010	4.4	34.1	10.0	1.0	16.4	27.3	6.9
Honduras	2010	9.8	27.8	10.3	1.0	17.8	25.7	7.7
Mexico	2010	8.0	36.8	12.6	1.1	27.2	10.7	3.7
Nicaragua	2005	5.4	30.4	9.2	1.2	18.8	26.7	8.3
Panama	2010	3.5	44.8	19.2	1.3	11.8	18.4	1.1
Paraguay	2010	6.3	27.1	13.5	1.9	25.3	22.6	3.5
Peru	2010	6.2	26.1	10.9	4.8	16.5	28.9	6.7
Uruguay	2010	4.5	40.1	14.9	1.9	17.4	20.1	1.1
Venezuela	2008	4.0	29.3	17.9	2.4	10.9	33.8	1.7

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 3.7
Informality Rate
Productive definition

Year	Argentina	Bolivia	Brasil	Chile	Colombia	Costa Rica	Dominican Republic	Ecuador	El Salvador	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela
1989						44.7					50.8		49.2			39.5	
1990				42.9		42.7											
1991									54.8	58.5			45.8				
1992	50.2		59.0	39.0		41.3					51.6					37.2	
1993	46.6		58.7			41.7				55.4		65.6					
1994	46.1					42.1				57.0							
1995	43.5		59.5			42.5				59.0			44.8			37.7	45.3
1996	44.8		58.4	38.0		42.3				59.3						38.8	
1997	43.0		58.5			43.5				59.2			44.6	70.8		39.0	
1998	42.8		57.8	38.3		42.4		56.0		58.7	52.6	65.7	44.7		64.8	37.7	47.1
1999	43.2	76.5	58.8			42.9		53.9		60.3				68.6	65.3		49.6
2000	44.2	75.3		36.9		44.0	51.7		54.9		49.4				65.4	38.7	50.5
2001	44.6	75.7	56.2			41.8	52.1		57.7	61.7		64.7	48.6	70.5	65.3	44.4	48.1
2002	43.0	75.2	55.9			42.5	53.1		56.9	64.7	53.9		50.2	73.8	64.7	45.6	51.9
2003	43.6	73.4	55.7	37.0		40.3	51.6	62.0	55.2	63.6			50.2	72.5	67.1	46.5	54.0
2004	42.9	73.4	54.2			39.5	51.1	62.5	55.2	58.3	50.2		48.0	73.5	67.1	45.2	51.1
2005	41.8	70.7	53.9			40.4	53.1	61.9	59.0	61.7	49.2	64.7	49.0	70.7	66.2	44.4	48.6
2006	41.2	71.1	52.5	35.2	59.7	39.2	53.9	62.4	56.8	58.8	52.8		48.4	71.1	65.5	43.5	47.6
2007	41.0	69.0	51.5		59.0	38.0	52.4	60.9	56.1	58.4				68.4	63.8	42.1	46.7
2008	39.7	68.6	49.4		60.2	36.9	53.5	60.2	56.7		44.5			67.2	63.8	40.8	46.4
2009	40.7		49.8	34.4	61.9	36.7	53.3	61.8	59.0	62.9			45.4	68.2	63.2	40.4	
2010	38.4				62.1	38.9	54.1	60.4	58.0		44.5		43.8	65.1	63.0	40.1	46.4

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 3.8
Informality Rate (Social Protection) by Labor Category

		Entrepreneurs	Salaried workers		Self-employed professionals	Salaried Small firms	Self-employed Unskilled	Workers with zero income
			Large firms	Public sector				
Argentina	2010		21.7	11.1		72.2		
Bolivia	2008	93.9	71.4	26.0	92.9	97.3	98.6	99.5
Brazil	2009	41.3	14.2	7.0	56.6	62.6	85.1	96.0
Chile	2009	43.5	16.5	12.6	52.0	51.2	80.2	88.2
Colombia	2010	84.4	23.6	2.3	57.9	86.9	94.4	99.1
Costa Rica	2009	81.2	19.0	1.9	94.0	74.2	94.1	96.1
Dominican Rep.	2010		20.8	8.6		91.6		
Ecuador	2010		44.2	10.8		88.6		
El Salvador	2010	87.6	39.9	5.6	67.8	94.5	98.7	99.6
Honduras	2010							
Mexico	2010		49.9	37.3		91.7		
Nicaragua	2005	97.3	54.3	23.5	99.2	97.9	99.8	100.0
Paraguay	2010		60.9	19.2		93.7		
Peru	2010	73.7	46.4	19.9	57.7	85.8	87.6	96.4
Uruguay	2010		10.7	0.0		53.4		
Venezuela	2008		28.7	13.1		83.9		

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 3.9
Informality Rate (Social Protection) by Labor Category

		Formal Productive		Informal Productive		(i) + (iv)
		Formal Legal	Informal Legal	Formal Legal	Informal Legal	
	Sample	(i)	(ii)	(iii)	(iv)	
Argentina	Only Salaried Workers	57.5	13.0	8.1	21.3	78.8
Bolivia	Only Salaried Workers	31.1	38.9	0.8	29.3	60.3
	All Workers	11.1	20.2	0.9	67.8	78.9
Brazil	Only Salaried Workers	58.7	8.2	12.4	20.7	79.4
	All Workers	42.1	8.1	11.4	38.4	80.5
Chile	Only Salaried Workers	68.4	12.7	9.2	9.6	78.1
	All Workers	53.7	12.2	10.7	23.4	77.0
Colombia	Only Salaried Workers	51.0	13.3	4.7	31.0	82.0
	All Workers	25.8	12.1	4.5	57.6	83.5
Costa Rica	Only Salaried Workers	64.0	10.8	6.5	18.7	82.7
	All Workers	49.2	11.9	6.1	32.8	82.0
Dom. Rep.	Only Salaried Workers	73.7	14.9	1.0	10.5	84.1
Ecuador	Only Salaried Workers	40.8	22.2	4.2	32.8	73.6
El Salvador	Only Salaried Workers	47.9	23.4	1.6	27.1	75.0
	All Workers	26.9	16.8	1.3	55.0	81.9
Honduras	Only Salaried Workers					
Mexico	Only Salaried Workers	33.2	29.2	3.1	34.5	67.7
Nicaragua	Only Salaried Workers	32.6	29.6	0.8	37.0	69.6
	All Workers	15.9	19.4	0.5	64.2	80.1
Paraguay	Only Salaried Workers	34.6	31.7	2.1	31.6	66.2
Peru	Only Salaried Workers	40.3	25.5	4.9	29.3	69.7
	All Workers	20.0	17.0	6.8	56.2	76.2
Uruguay	Only Salaried Workers	69.0	5.8	12.0	13.2	82.2
Venezuela	Only Salaried Workers	62.7	18.5	3.0	15.8	78.5

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 4.1
Relative hours of work by type of work
Formal Workers = 100
Social Protection Definition

Country	Year	Informal Workers								Formal workers							
		Total	Entrepreneurs	Salaried workers		Self-employed professionals	Salaried Small firms	Self-employed Unskilled	Zero Income	Total	Entrepreneurs	Salaried workers		Self-employed professionals	Salaried Small firms	Self-employed Unskilled	Zero Income
				Large firms	Public sector							Large firms	Public sector				
Argentina	2010	84		100	74		77			100		106	85		103	.	
Bolivia	2008	97	114	106	93	100	112	107	71	100	100	112	89	89	118	118	104
Brazil	2009	83	108	93	78	84	87	88	56	100	112	103	87	95	104	107	85
Chile	2009	90	104	91	91	89	84	91	88	100	107	100	98	89	99	101	111
Colombia	2010	87	105	95	105	77	93	86	60	100	110	101	93	85	108	99	78
Costa Rica	2009	80	102	91	61	72	74	80	54	100	105	103	94	95	98	91	42
Dominican Rep.	2010	99		102	82		100			100		105	90		109		
Ecuador	2010	94		96	91		93			100		105	92		100		
El Salvador	2010	87	99	98	96	94	89	84	73	100	104	104	91	89	104	85	50
Honduras	2010																
Mexico	2010	90	99	99	90	82	90	81	72	100	124	105	87		102	108	
Nicaragua	2005	87	100	100	91	95	97	84	66	100	119	104	91	105	100	101	
Paraguay	2010	105	.	107	81	.	107			100		109	87		120		
Peru	2010	86	100	98	91	84	95	80	75	100	107	111	93	77	92	91	88
Uruguay	2010	78		90			73			100		105	91	.	96		
Venezuela	2008	96		99	84		96			100		103	95		105		

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 4.2
Relative wages by type of work
Formal Workers = 100
Social Protection Definition

Country	Year	Informal Workers							Formal workers						
		Total	Entrepreneurs	Salaried workers		Self-employed professionals	Salaried Small firms	Self-employed Unskilled	Total	Entrepreneurs	Salaried workers		Self-employed professionals	Salaried Small firms	Self-employed Unskilled
				Large firms	Public sector						Large firms	Public sector			
Argentina	2010	56		64	71		51		100		96	123		70	
Bolivia	2008	50	80	48	69	82	37	45	100	169	99	105	50	90	39
Brazil	2009	56	169	61	105	167	34	53	100	284	81	135	270	53	100
Chile	2009	98	386	64	90	337	44	103	100	424	85	117	425	55	125
Colombia	2010	40	85	41	72	106	34	34	100	216	88	165	184	53	59
Costa Rica	2009	80	188	68	105	179	48	90	100	208	81	160	231	59	66
Dominican Rep.	2010	60		56	106		53		100		93	114		72	
Ecuador	2010	53		59	82		48		100		85	135		63	
El Salvador	2010	57	129	51	67	127	43	59	100	249	77	148	169	65	103
Honduras	2010														
Mexico	2010	61	87	65	103	164	45	47	100	365	86	146		75	154
Nicaragua	2005	64	233	60	83	134	43	51	100	388	95	105	60	87	57
Paraguay	2010	60		65	105		49		100		87	120		75	
Peru	2010	57	128	61	62	87	42	50	100	176	100	105	126	65	74
Uruguay	2010	56		68			51		100		96	130		65	
Venezuela	2008	66		75	67		58		100		93	113		65	

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 4.3
Hourly Wage Regressions
Social Protection Definition

Country	Year	Males				Females			
		Primary	Secondary	Young	Old	Primary	Secondary	Young	Old
Argentina	2010	-0.409***	-0.429***	0.051**	-0.098***	-0.226***	-0.422***	0.024	-0.142***
Bolivia	2007	-0.237***	-0.308***	-0.054	-0.109	-0.375***	-0.555***	0.061	-0.241
Brazil	2009	-0.324***	-0.267***	0.070***	-0.137***	-0.247***	-0.335***	-0.046***	-0.055**
Chile	2009	-0.110***	-0.138***	-0.048*	-0.074**	-0.085***	-0.187***	-0.039	-0.019
Colombia	2010	-0.392***	-0.450***	0.037**	-0.221***	-0.415***	-0.468***	0.016	-0.092***
Costa Rica	2010	-0.160***	-0.354***	0.039	-0.133	-0.348***	-0.410***	0.144*	0.012
Dom. Rep.	2010	-0.154***	-0.136***	-0.078	0.108	-0.066	-0.316***	0.049	0.177
Ecuador	2010	-0.171***	-0.242***	-0.007	-0.066	-0.284***	-0.282***	-0.040	-0.383***
El Salvador	2010	-0.275***	-0.384***	0.032	-0.153***	-0.300***	-0.429***	0.069**	-0.204***
Mexico	2010	-0.171***	-0.241***	0.030	0.024	-0.103***	-0.286***	0.045	0.034
Nicaragua	2005	-0.094**	-0.215***	0.017	-0.064	-0.276***	-0.203***	0.047	-0.299**
Paraguay	2010	-0.272***	-0.232***	-0.065	0.180	-0.398***	-0.204***	-0.048	0.140
Peru	2010	-0.188***	-0.195***	0.003	-0.031	-0.408***	-0.303***	-0.035	0.061
Uruguay	2010	-0.339***	-0.392***	0.166***	-0.155***	-0.145***	-0.340***	0.111***	-0.240***
Venezuela	2010	-0.155***	-0.148***	0.005	-0.012	-0.304***	-0.262***	-0.047*	-0.114***

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 6.1
Coefficients for natural log of per capita GDP

Dep. Var: ratio informal/formal	Urban up to primary school			Urban up to secondary school			Urban only tertiary school			Rural up to primary school			Rural up to secondary school		
	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se
pool regression	-3.486 (6.34)**	-4.543 (5.57)**	-8.254 (6.11)**	-2.006 (6.30)**	-1.917 (5.71)**	-4.043 (6.22)**	-0.277 (5.89)**	-0.061 (3.08)**	-0.342 (5.68)**	-7.934 (5.07)**	-31.116 (3.85)**	-41.762 (4.25)**	-4.788 (5.94)**	-14.410 (4.65)**	-21.096 (4.89)**
fixed effects	-1.248 (1.23)	-3.259 (1.82)	-4.511 (1.61)	-0.482 (1.63)	-0.757 (2.95)**	-1.251 (2.30)*	-0.172 (2.07)*	-0.075 (2.48)*	-0.252 (2.38)*	-4.485 (1.52)	-7.593 (1.11)	-10.946 (1.16)	-4.014 (2.19)*	-10.156 (2.90)**	-11.846 (2.12)*
fixed effects plus lineal trend by country	0.215 (0.19)	1.521 (0.97)	1.383 (0.54)	-1.507 (3.45)**	-1.218 (3.89)**	-2.845 (3.87)**	-0.189 (2.26)*	-0.150 (3.31)**	-0.365 (3.56)**	-5.610 (0.74)	-28.129 (1.20)	-28.787 (0.94)	-0.899 (0.31)	-6.433 (1.34)	-2.172 (0.25)
fixed effects plus lineal & cuadratic trend by country	-0.539 (0.65)	0.395 (0.42)	-0.095 (0.06)	-0.949 (2.62)**	-0.769 (4.44)**	-1.738 (3.74)**	-0.131 (1.59)	-0.177 (2.94)**	-0.311 (2.74)**	2.655 (0.42)	-0.662 (0.04)	12.944 (0.54)	1.125 (0.43)	-1.943 (0.58)	9.681 (0.87)

Dep. Var: ratio of wage informal / wage formal	Urban up to primary school			Urban up to secondary school			Urban only tertiary school			Rural up to primary school			Rural up to secondary school		
	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se
pool regression	0.086 (3.70)**	0.242 (3.38)**	0.168 (3.73)**	0.067 (3.49)**	0.245 (3.64)**	0.166 (4.01)**	0.001 (0.05)	0.300 (4.45)**	0.196 (4.74)**	-0.041 (0.62)	0.310 (4.14)**	0.195 (4.21)**	-0.004 (0.08)	0.327 (4.31)**	0.204 (4.36)**
fixed effects	0.145 (2.13)*	-0.064 (0.72)	0.029 (0.41)	0.111 (2.42)*	0.041 (0.66)	0.063 (1.19)	-0.125 (1.96)	0.121 (0.83)	-0.016 (0.19)	0.110 (0.87)	-0.008 (0.08)	0.044 (0.57)	0.144 (1.65)	0.124 (1.47)	0.127 (2.10)*
fixed effects plus lineal trend by country	0.000 (0.57)	0.000 (0.66)	0.000 (1.68)	0.000 (0.27)	0.000 (0.46)	0.000 (0.96)	0.000 (0.61)	0.000 (1.42)	0.000 (40.79)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
fixed effects plus lineal & cuadratic trend by country	0.348 (2.32)*	0.357 (1.52)	0.287 (1.76)	0.282 (3.08)**	0.374 (2.41)*	0.313 (2.90)**	0.054 (0.29)	0.835 (3.06)**	0.521 (3.01)**	-0.044 (0.24)	-0.045 (0.10)	-0.281 (0.77)	0.068 (0.63)	0.060 (0.22)	-0.091 (0.42)

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Note: swrp = salaried workers without right to pensions, se = self employed

Robust t statistics in parentheses

* significant at 5%; ** significant at 1%

Table 6.2
Coefficients for HP business cycle

Dep. Var: ratio informal/formal	Urban up to primary school			Urban up to secondary school			Urban only tertiary school			Rural up to primary school			Rural up to secondary school		
	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se
fixed effects	-2.297 (1.56)	-2.449 (1.30)	-4.933 (1.55)	-2.452 (3.60)**	-2.027 (3.97)**	-4.555 (4.00)**	-0.364 (2.39)*	-0.190 (2.87)**	-0.581 (3.30)**	-10.998 (1.63)	-25.362 (1.26)	-31.579 (1.25)	-6.619 (1.54)	-17.697 (2.31)*	-14.827 (1.03)
fixed effects plus lineal trend by country	0.533 (0.37)	1.881 (0.95)	1.985 (0.61)	-1.560 (2.87)**	-1.343 (3.41)**	-3.056 (3.20)**	-0.144 (1.43)	-0.160 (2.60)*	-0.332 (2.62)**	-6.461 (0.74)	-31.346 (1.16)	-29.314 (0.81)	-0.897 (0.26)	-7.772 (1.30)	0.555 (0.05)
fixed effects plus lineal & cuadratic trend by country	-0.412 (0.42)	0.666 (0.57)	0.317 (0.16)	-0.977 (2.35)*	-0.829 (4.13)**	-1.829 (3.37)**	-0.117 (1.27)	-0.201 (2.82)**	-0.323 (2.44)*	2.578 (0.37)	0.469 (0.03)	15.814 (0.60)	1.202 (0.42)	-1.288 (0.36)	12.211 (0.94)

Dep. Var: ratio of wage informal / wage formal	Urban up to primary school			Urban up to secondary school			Urban only tertiary school			Rural up to primary school			Rural up to secondary school		
	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se	swrp	se	swrp+se
fixed effects	0.506 (2.50)*	0.721 (2.72)**	0.606 (2.93)**	0.381 (3.29)**	0.633 (3.47)**	0.559 (3.92)**	0.151 (0.76)	1.074 (3.61)**	0.754 (3.59)**	-0.021 (0.10)	-0.030 (0.08)	-0.083 (0.31)	0.066 (0.47)	0.015 (0.05)	-0.013 (0.06)
fixed effects plus lineal trend by country	0.315 (1.85)	0.476 (1.84)	0.340 (1.85)	0.243 (2.55)*	0.449 (2.58)*	0.337 (2.82)**	0.021 (0.10)	0.984 (2.97)**	0.596 (2.93)**	0.517 (1.88)	0.258 (0.61)	0.110 (0.32)	0.315 (1.90)	0.089 (0.32)	0.005 (0.02)
fixed effects plus lineal & cuadratic trend by country	0.000 (0.57)	0.000 (0.66)	0.000 (1.68)	0.000 (0.27)	0.000 (0.46)	0.000 (0.96)	0.000 (0.61)	0.000 (1.42)	0.000 (40.79)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Robust t statistics in parentheses

Note: swrp = salaried workers without right to pensions, se = self employed

* significant at 5%; ** significant at 1%

Table 7.1

Country	Primary activities	Industry low tech	Industry high tech	Construction	Commerce	Utilities & transportation	Skilled services	Public administration	Education & Health	Domestic servants
Argentina	30.1	42.5	18.9	64.4	40.3	32.2	23.7	11.0	19.9	82.8
Bolivia	84.9	72.6	-	91.7	81.9	77.2	66.4	31.7	35.7	98.6
Brazil	59.5	20.8	12.8	42.4	27.3	15.8	15.2	9.8	15.3	68.7
Chile	29.2	17.8	14.5	21.3	23.3	16.7	13.6	12.3	15.3	57.3
Colombia	76.9	36.8	24.5	67.3	53.0	29.9	15.1	7.1	20.4	88.4
Costa Rica	39.6	21.0	18.6	46.2	31.0	22.5	15.7	4.0	12.7	81.5
Dominican Rep.	42.7	15.3	33.3	26.2	44.0	22.3	21.8	7.1	25.2	-
Ecuador	83.5	52.4	42.6	88.5	54.8	50.8	29.3	9.7	26.7	80.5
El Salvador	67.8	32.8	41.7	57.8	19.2	58.9	34.8	-	13.0	-
Guatemala	87.4	45.9	45.4	87.0	56.0	65.7	33.6	27.0	39.8	96.3
Mexico	89.3	57.9	34.3	84.5	65.1	59.9	47.7	44.4	39.1	99.0
Nicaragua	94.5	35.7	65.2	80.3	70.0	70.4	45.1	30.1	34.6	99.1
Paraguay	96.0	68.8	66.4	96.1	75.4	51.7	56.5	23.4	38.0	99.8
Peru	77.6	51.1	50.9	65.2	63.2	56.5	30.5	27.8	27.5	92.1
Uruguay	29.1	19.0	16.2	23.4	21.5	9.9	11.1	1.3	7.8	55.4
Venezuela	68.1	34.8	31.1	57.5	45.2	45.0	23.7	10.4	31.2	82.0

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 7.2
Decomposition of changes in informality rates
Urban salaried workers
Social Protection Definition

	Actual change	Effects [1]	
		Characteristics	Parameters
Argentina			
1992-2003	12.5	1.5	11.0
2003-2010	-9.3	-3.3	-6.0
Bolivia			
2000-2008	5.1	1.1	4.0
Brasil			
1993-2001	-0.1	-2.0	1.9
2001-2009	-6.7	-4.4	-2.3
Chile			
1990-2000	3.4	-3.6	7.0
2000-2009	-0.2	-0.7	0.5
Colombia			
2006-2010	-5.6	-2.7	-2.9
Costa Rica			
1990-2000	5.7	2.3	3.4
2000-2010	-2.4	-0.1	-2.4
Dominican Rep.			
2005-2010	-32.6	-3.3	-29.3
Ecuador			
2003-2010	-14.1	-5.0	-9.1
El Salvador			
1991-2000	-4.2	-7.2	3.0
2000-2010	4.7	0.7	4.0
Mexico			
1990-2010	10.9	2.5	8.3
Nicaragua			
1998-2005	-5.9	-5.6	-0.3
Paraguay			
2001-2010	-5.6	-3.8	-1.8
Peru			
2000-2010	-25.7	-3.2	-22.5
Uruguay			
2001-2010	-4.2	-0.3	-3.9
Venezuela			
2000-2010	-3.0	-8.3	5.2

[1] Average effects

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Table 7.3
Decomposition of informality rates
Social Protection definition

Simulated rates

Simulated Rates												
Parameters of ...												
	Arg	Bra	Chi	Cos	Ecu	Els	Mex	Nic	Par	Per	Uru	Ven
Characteristics of ...												
Arg	35.5	27.5	29.1	31.2	49.9	41.7	53.9	53.5	59.2	51.8	21.1	40.3
Bra	36.7	26.0	28.1	28.5	50.4	42.5	54.9	54.2	61.6	56.5	21.2	40.3
Chi	27.5	18.1	20.8	21.6	41.6	29.0	46.7	45.6	55.8	42.9	12.7	29.8
Cos	30.6	21.0	24.0	23.5	45.1	33.7	48.4	46.6	55.4	50.0	16.3	35.1
Ecu	36.4	25.8	27.3	29.4	51.9	40.1	54.9	54.5	62.0	53.1	21.1	40.7
Els*	28.5	18.9	23.8	22.0	47.3	42.3	51.6	49.6	58.6	50.2	17.0	38.8
Mex	38.9	28.4	29.8	30.7	55.6	43.6	55.4	56.9	64.6	57.7	22.9	43.5
Nic	40.8	28.5	29.8	30.2	57.2	45.6	58.8	57.1	67.2	61.8	24.2	44.6
Par**	43.6	33.1	33.4	34.7	57.9	50.2	61.2	61.8	63.9	62.5	26.4	47.5
Per	34.1	25.0	26.5	27.4	47.0	39.1	52.0	51.2	56.9	48.0	19.1	36.6
Uru	34.6	25.2	27.7	27.7	50.9	36.6	52.8	50.9	61.9	52.3	18.9	39.8
Ven	35.1	24.8	27.4	26.3	54.3	37.2	53.6	53.2	64.1	56.3	19.9	39.6

Characteristics effect

Characteristics of country ...												
	Arg	Bra	Chi	Cos	Ecu	Els	Mex	Nic	Par	Per	Uru	Ven
Arg	0.0	1.2	-8.0	-4.9	0.9	-7.0	3.4	5.2	8.0	-1.5	-0.9	-0.4
Bra	1.5	0.0	-7.9	-5.0	-0.2	-7.1	2.4	2.5	7.1	-1.0	-0.8	-1.2
Chi	8.3	7.3	0.0	3.2	6.5	3.0	9.0	9.0	12.6	5.7	6.9	6.6
Cos	7.7	5.0	-2.0	0.0	5.9	-1.6	7.2	6.7	11.2	3.9	4.2	2.8
Ecu	-2.0	-1.5	-10.4	-6.9	0.0	-4.6	3.6	5.3	5.9	-4.9	-1.0	2.4
Els*	-0.6	0.2	-13.4	-8.6	-2.2	0.0	1.3	3.3	7.9	-3.2	-5.8	-5.1
Mex	-1.4	-0.5	-8.6	-7.0	-0.4	-3.8	0.0	3.4	5.8	-3.4	-2.6	-1.8
Nic	-3.6	-2.9	-11.5	-10.5	-2.6	-7.5	-0.2	0.0	4.6	-5.9	-6.2	-3.9
Par**	-4.7	-2.3	-8.2	-8.6	-1.9	-5.3	0.7	3.3	0.0	-7.1	-2.0	0.2
Per	3.8	8.5	-5.1	2.0	5.2	2.2	9.7	13.8	14.5	0.0	4.4	8.4
Uru	2.2	2.3	-6.1	-2.6	2.3	-1.9	4.1	5.3	7.5	0.3	0.0	1.0
Ven	0.6	0.7	-9.8	-4.5	1.1	-0.8	3.9	4.9	7.9	-3.1	0.2	0.0

Parameter effect

Parameters of country...												
	Arg	Bra	Chi	Cos	Ecu	Els*	Mex	Nic	Par	Per	Uru	Ven
Arg	0.0	-8.1	-6.5	-4.3	14.4	6.2	18.4	18.0	23.6	16.2	-14.5	4.7
Bra	10.7	0.0	2.1	2.6	24.4	16.5	28.9	28.2	35.6	30.5	-4.8	14.3
Chi	6.7	-2.7	0.0	0.8	20.8	8.2	25.9	24.8	34.9	22.1	-8.1	9.0
Cos	7.1	-2.5	0.5	0.0	21.6	10.2	24.9	23.1	31.9	26.5	-7.2	11.6
Ecu	-15.5	-26.1	-24.7	-22.5	0.0	-11.8	3.0	2.6	10.1	1.2	-30.8	-11.2
Els*	-13.8	-23.5	-18.5	-20.4	5.0	0.0	9.3	7.3	16.3	7.8	-25.3	-3.5
Mex	-16.4	-27.0	-25.6	-24.7	0.2	-11.8	0.0	1.6	9.3	2.4	-32.5	-11.9
Nic	-16.3	-28.6	-27.3	-26.9	0.1	-11.5	1.7	0.0	10.1	4.7	-33.0	-12.6
Par**	-20.4	-30.8	-30.5	-29.3	-6.1	-13.7	-2.7	-2.2	0.0	-1.5	-37.6	-16.4
Per	-13.9	-23.0	-21.5	-20.6	-1.0	-8.9	4.0	3.2	8.9	0.0	-28.9	-11.4
Uru	15.7	6.3	8.8	8.9	32.0	17.7	33.9	32.1	43.0	33.5	0.0	21.0
Ven	-4.5	-14.8	-12.2	-13.3	14.7	-2.4	14.0	13.6	24.5	16.7	-19.8	0.0

Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

* Domestic Servants and Public Administration sectors non defined

** Domestic Servants sector non defined

Table 7.4
Decomposition of informality rates
Social Protection definition

Sector informality rates of ...											
	Argentina	Brasil	Chile	Costa Rica	Ecuador	Mexico	Nicaragua	Paraguay	Peru	Uruguay	Venezuela
Sectoral weights of ...											
Argentina	35.9	24.0	20.9	25.3	47.0	54.7	55.1	59.8	46.6	17.3	39.6
Brasil	37.6	26.0	22.0	27.2	49.8	56.8	58.2	63.7	49.2	19.4	41.8
Chile	36.4	26.2	21.0	26.1	51.3	57.9	59.1	64.6	48.5	18.5	42.9
Costa Rica	34.3	22.7	19.7	23.6	46.9	54.2	55.2	59.7	46.2	16.4	38.8
Ecuador	37.3	26.1	20.8	26.1	51.9	58.0	58.2	64.9	48.6	18.5	42.7
Mexico	36.7	24.1	20.1	24.9	50.2	55.3	57.5	63.7	48.4	17.8	40.6
Nicaragua	38.4	26.1	21.4	26.4	52.0	57.8	57.1	65.0	49.6	19.4	42.3
Paraguay **	39.6	26.7	22.8	28.7	51.3	58.4	59.7	63.9	51.0	19.7	43.0
Peru	35.7	25.3	20.7	25.1	48.6	55.9	55.4	62.1	46.4	17.9	40.6
Uruguay	37.0	26.1	21.8	26.7	49.5	57.1	56.9	62.6	48.3	18.9	41.9
Venezuela	34.4	24.3	19.7	23.8	48.9	54.7	56.0	62.3	46.2	17.0	41.3

* Domestic Servants and Public Administration sectors non defined

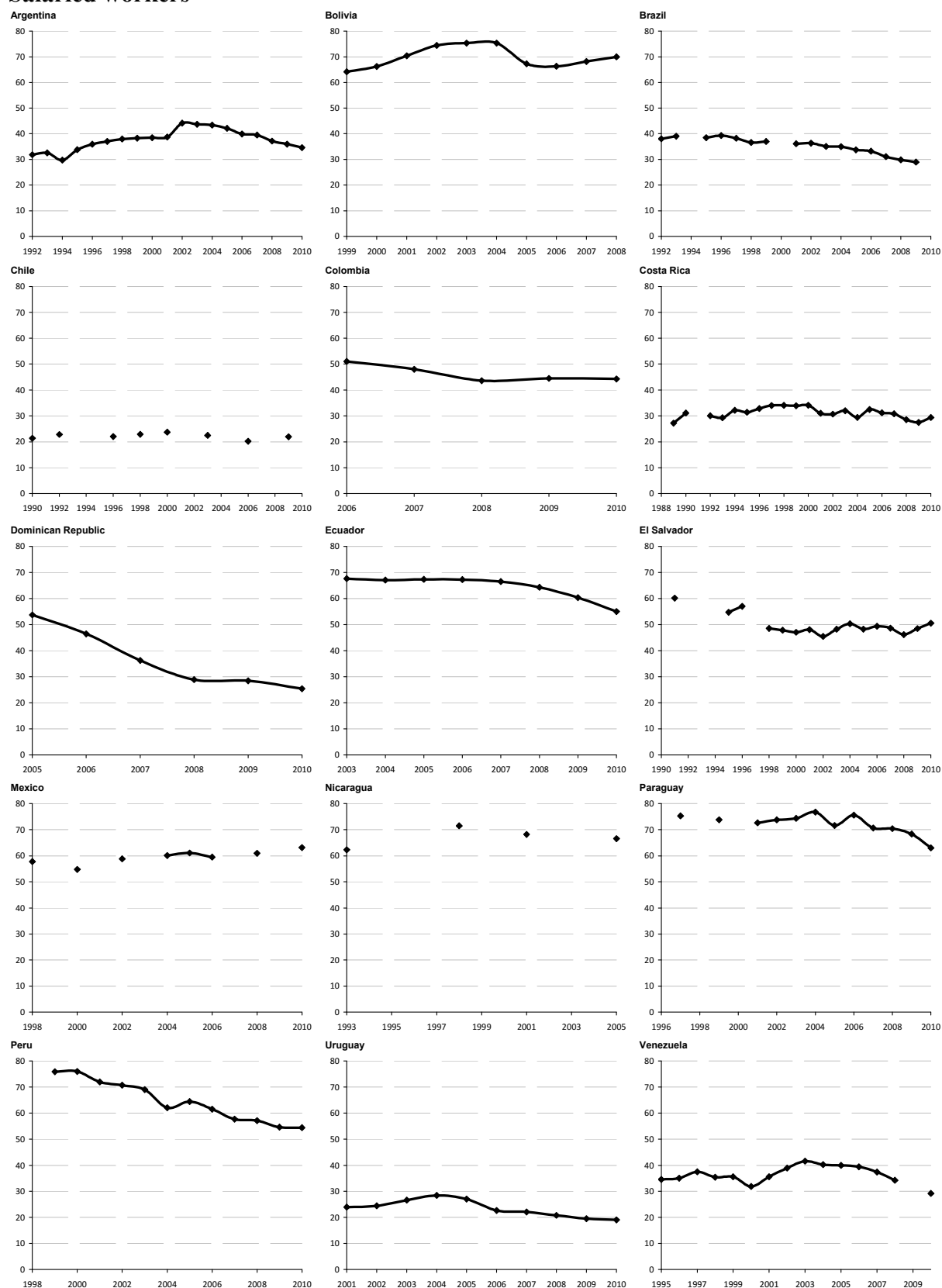
** Domestic Servants sector non defined

Composition effect

Sector informality rates of ...											
	Arg	Bra	Chi	Cos	Ecu	Mex	Nic	Par	Per	Uru	Ven
Structure											
Arg	0.0	-2.0	-0.1	1.7	-5.0	-0.7	-2.0	-4.1	0.2	-1.5	-1.7
Bra	1.7	0.0	1.1	3.6	-2.1	1.5	1.1	-0.2	2.8	0.5	0.5
Chi	0.5	0.2	0.0	2.6	-0.6	2.5	2.0	0.8	2.1	-0.3	1.6
Cos	-1.6	-3.3	-1.2	0.0	-5.0	-1.2	-1.9	-4.2	-0.2	-2.5	-2.5
Ecu	1.4	0.1	-0.2	2.5	0.0	2.7	1.1	1.0	2.2	-0.3	1.3
Mex	0.8	-1.9	-0.8	1.3	-1.7	0.0	0.4	-0.2	2.0	-1.1	-0.7
Nic	2.5	0.1	0.4	2.9	0.0	2.4	0.0	1.1	3.2	0.5	1.0
Par	3.7	0.7	1.8	5.1	-0.6	3.1	2.6	0.0	4.6	0.9	1.6
Per	-0.1	-0.7	-0.3	1.5	-3.3	0.6	-1.7	-1.7	0.0	-0.9	-0.7
Uru	1.2	0.1	0.9	3.1	-2.4	1.8	-0.2	-1.3	1.9	0.0	0.6
Ven	-1.5	-1.7	-1.3	0.3	-3.0	-0.6	-1.1	-1.6	-0.2	-1.8	0.0

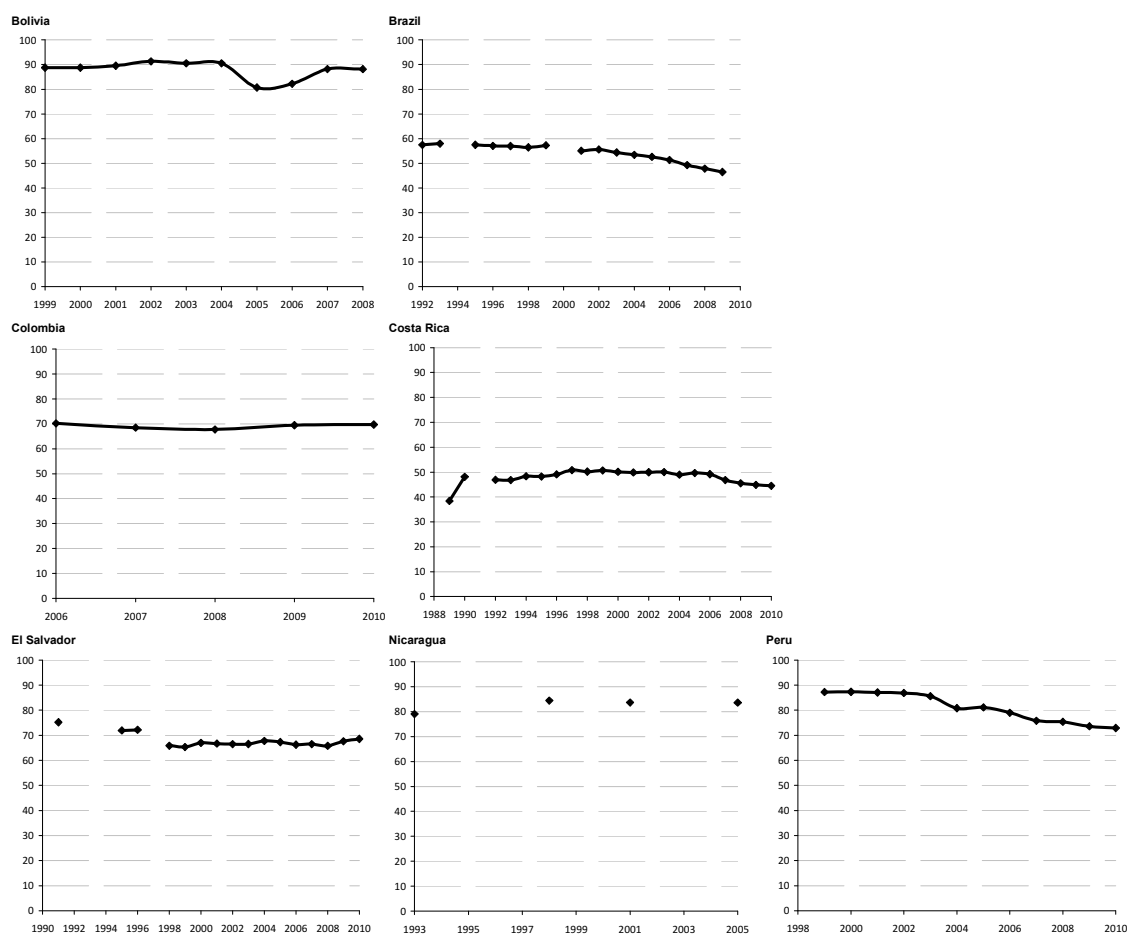
Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Figure 3.3
Informality rate
Social protection definition
Salaried workers



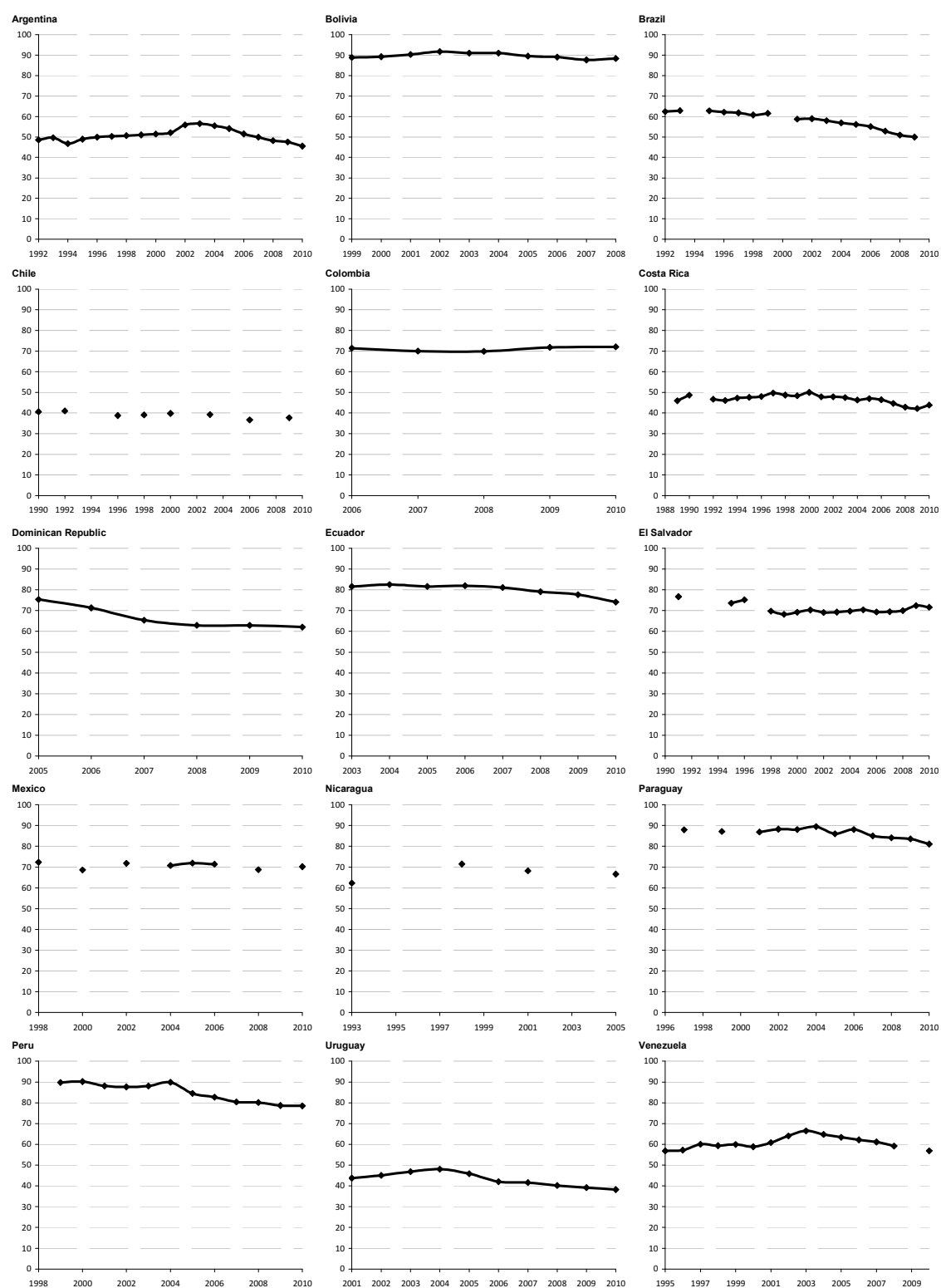
Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Figure 3.7
Informality rate
Social protection definition
All workers



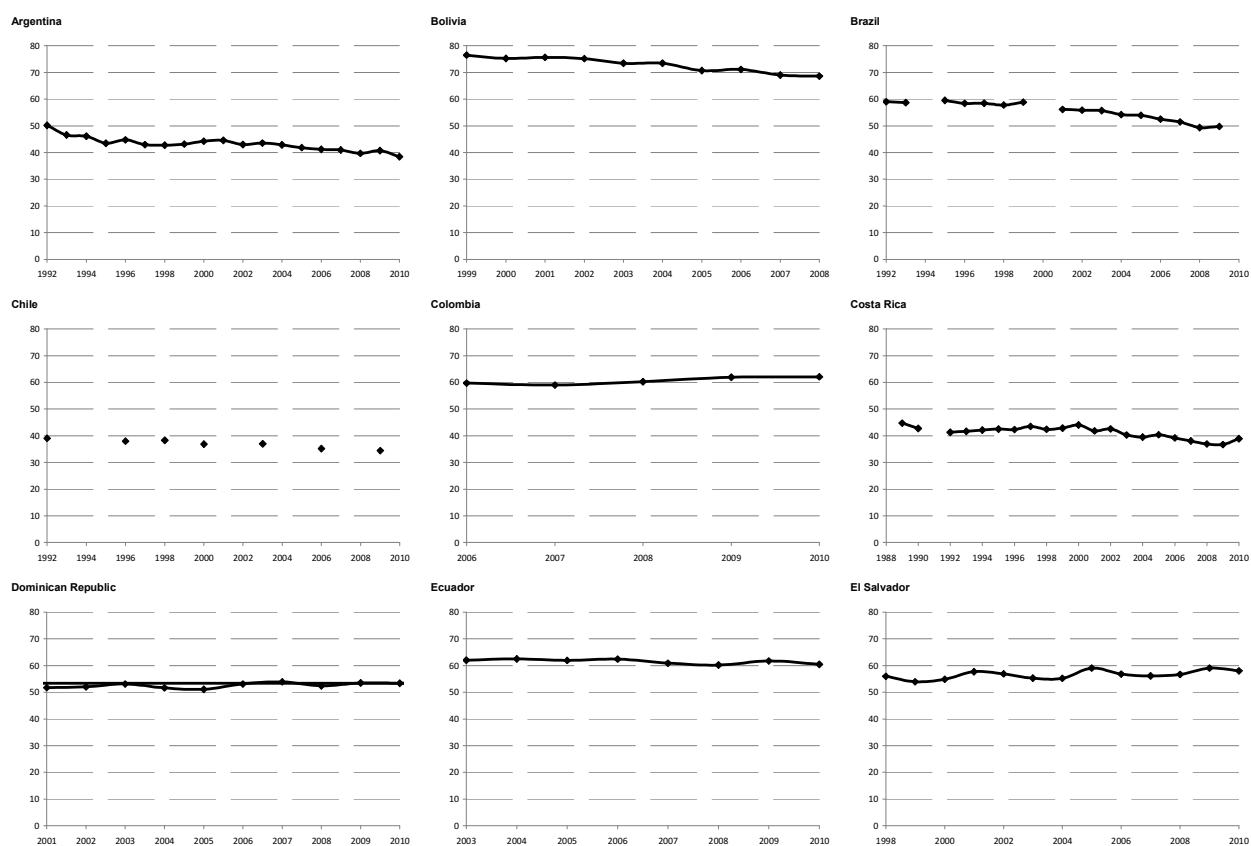
Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Figure 3.8
Informality rate
Social protection definition
All workers – all self-employed considered as informal



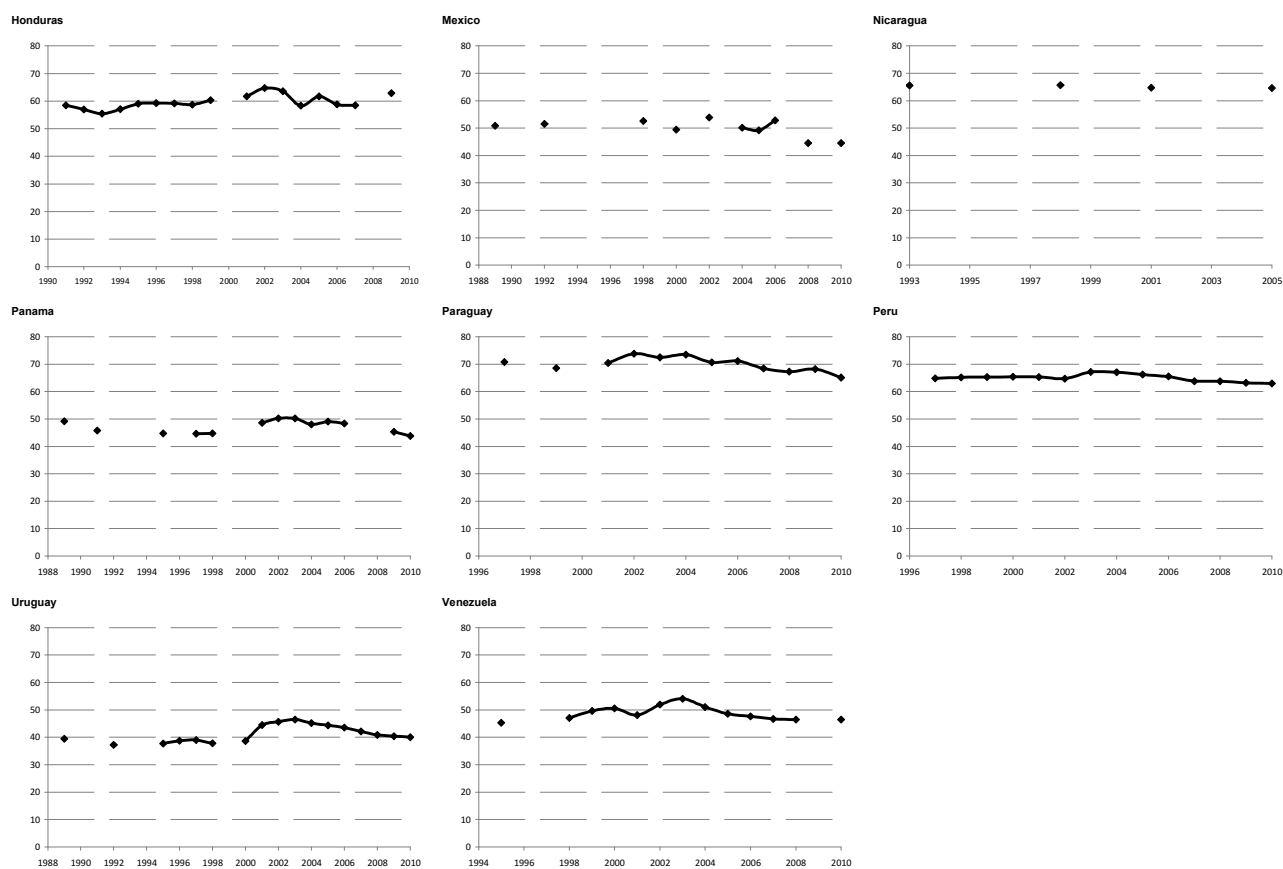
Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Figure 3.14
Informality Rate
Productive Definition



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Figure 3.14 (cont.)
Informality Rate
Productive Definition



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

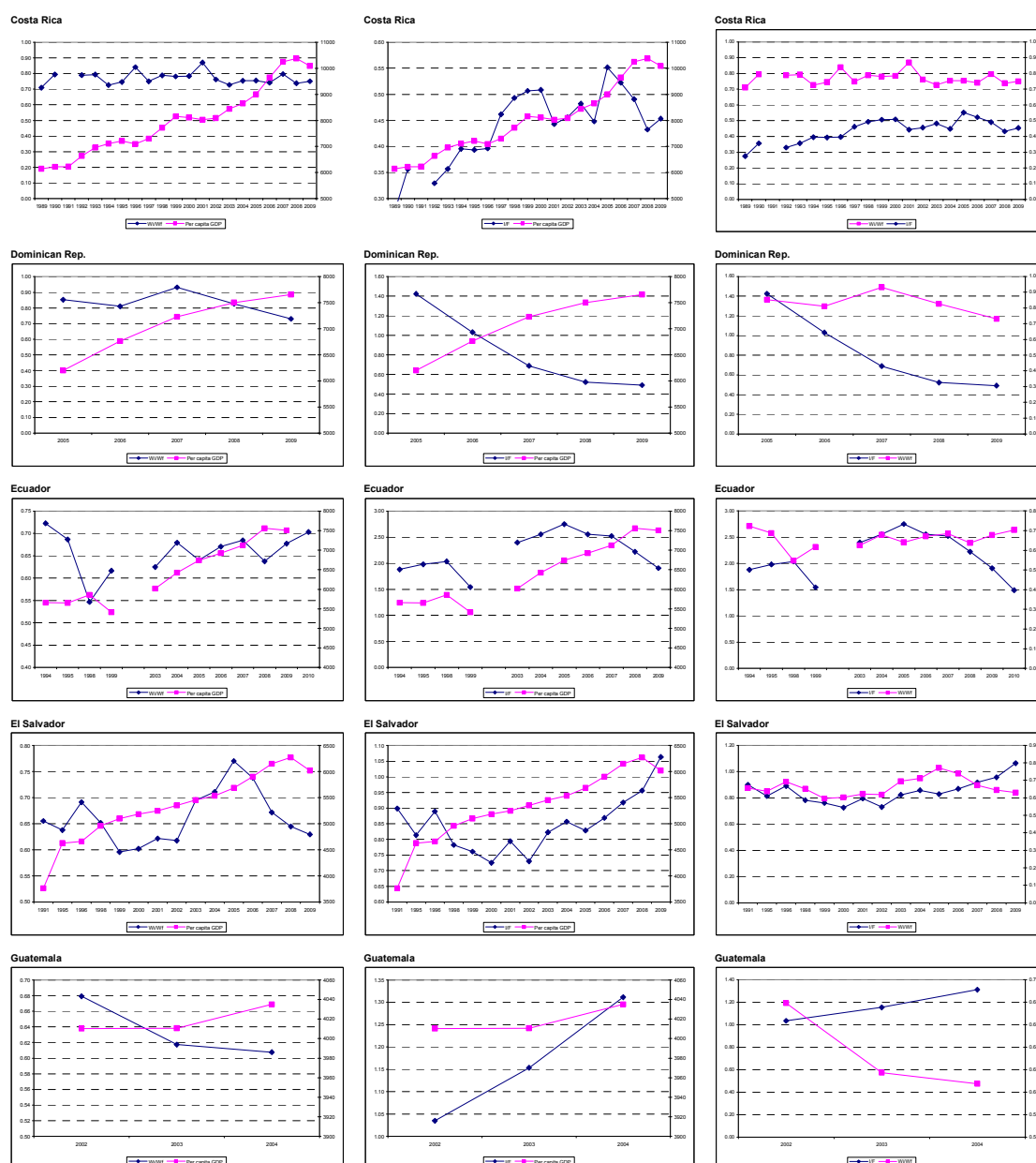
Figure 6.1
Relative wages formal/informal; relative number of workers formal/informal, and
GDP



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Note: urban workers aged 15 to 70 without tertiary education

Figure 6.1 (cont.)
Relative wages formal/informal; relative number of workers formal/informal, and GDP

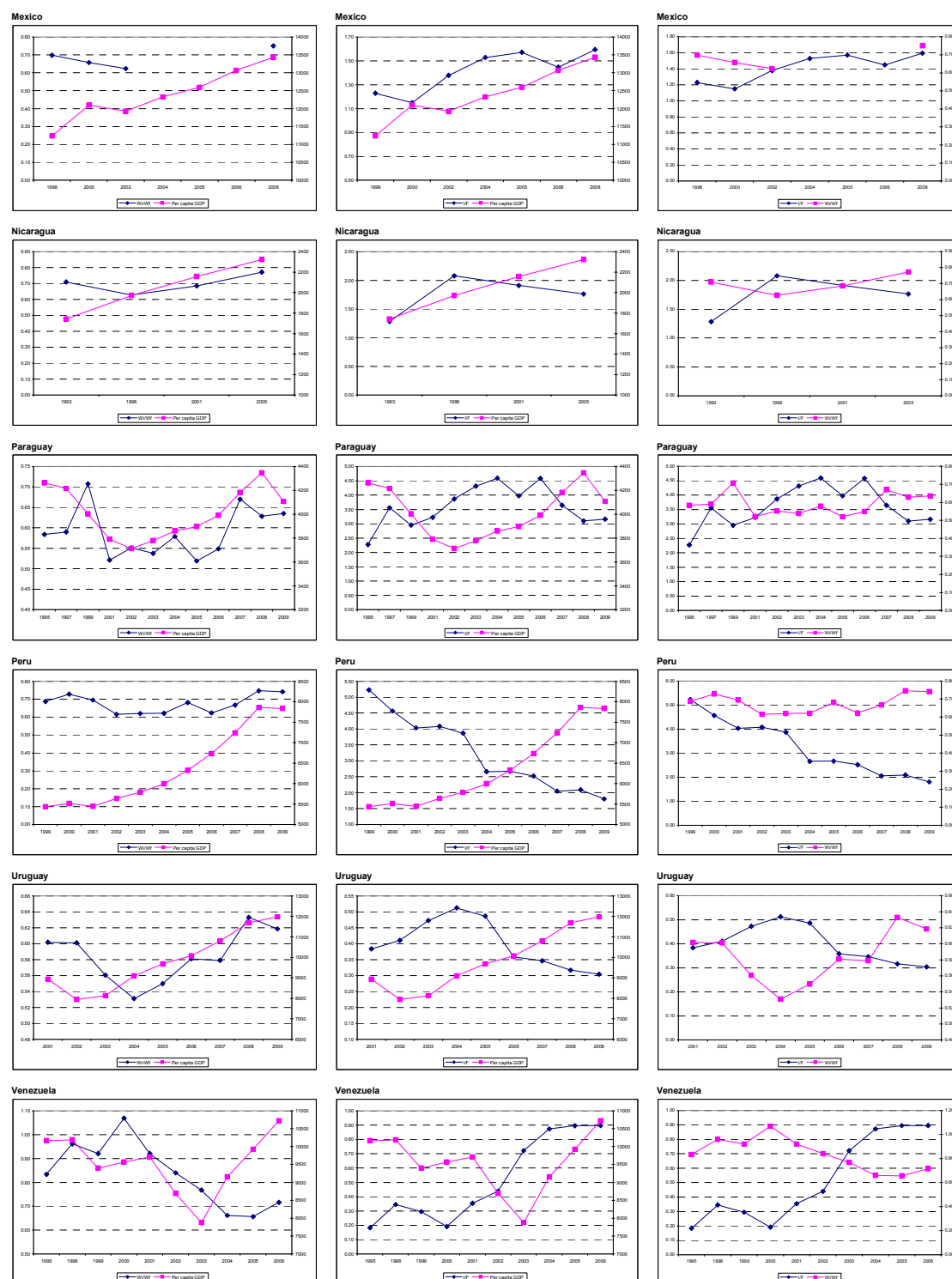


Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Note: urban workers aged 15 to 70 without tertiary education

Figure 6.1 (cont.)

Relative wages formal/informal; relative number of workers formal/informal, and GDP



Source: own calculations based on SEDLAC (CEDLAS and The World Bank).

Note: urban workers aged 15 to 70 without tertiary education